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COMMUNAL SERVICE DELIVERY: HOW CUSTOMERS BENEFIT FROM

PARTICIPATION IN FIRM-HOSTED VIRTUAL P3 COMMUNITIES

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Abstract

Firm-hosted virtual peer-to-peer problem solving (P3) communities offer a low-cost, credible, and effective means of delivering education and ongoing assistance services to customers of complex, frequently evolving products. Building upon the social constructivist view on learning and drawing from literature on the firm-customer relationship in services marketing, we distinguish between functional and social benefits received by P3 community participants and study in particular the central role of learning in influencing these benefit perceptions. The proposed model is tested on data gathered from 2,299 active members of a P3 community hosted by a global online auction firm, and the framework's generalizability is verified on a sample of 204 members of a global B2B software firm's P3 community. Based on the results, specific recommendations are provided to marketers interested in implementing service support programs via customer communities, and future research opportunities are explored.

Key Words:

Service support, customer community, customer service, customer-generated service

INTRODUCTION

For complex, frequently evolving products, customers must learn continuously to keep abreast of changes and new developments and to take advantage of these advances. One way to achieve customer learning is through the provision of service support to new and existing customers of the firm. Service support can be defined as *the pre- and post-sale services provided to customers to assist them in (a) learning about product-related decisions, (b) learning to use the product, and (c) solving problems during its use* (Das 2003; Gray and Durcikova 2006). Service support is not only important in settings involving elaborate decision making by customers such as retail fashion (Beatty et al. 1996), but also for many technical and complex products such as computer software and electronic appliances, that require knowledge on the consumer's part to install, use, maintain, and repair. In general, customer education is essential for products that involve frequent upgrades and modifications (Jeppesen and Frederiksen 2006) or when customers are dealing with unfamiliar services.

Traditionally, companies have been responsible for educating their customers to fully leverage the company's service offerings. Customers can participate in firm-organized training, and service support is delivered by the firm's full-time or contracted employees (e.g., Gray and Durcikova 2006). However, increasingly, many firms supplement the employee-based service support model with virtual peer-to-peer problem solving customer communities, which have recently been termed virtual P3 communities (Mathwick, Wiertz and de Ruyter 2008). In these communities, service support is usually provided with little or no employee involvement through a firm-hosted web site. Customers ask questions regarding problems faced, and receive quick and enthusiastic help from their peers, usually other customers (e.g., Nambisan and Baron 2007). These other customers assist their peers in learning about the products and their use. As such, customers take over service functions that are traditionally performed by employees and in fact act as "partial employees" of the firm (Mills and Morris 1986).

In eBay's Help Forums, for example, many novice sellers are interested in learning about the efficacy of different decision variables such as offering "buy-it-now" options, starting the

auction with a low price vs. a high price, etc. Experienced sellers who are Forum members provide this service, bypassing the eBay employees. Therefore, for firms, virtual P3 communities offer a low cost way of delivering fast and usually high quality service to their customers. At the same time, as we discuss in detail later, this way of delivering service support also provides customers with additional benefits than just problem solving. The main goal of this current research is to study the benefits derived by customers participating in firm-hosted virtual P3 communities, along with their drivers --- learning and social identification --- and consequences, two types of helping behavior without which a P3 community could not function.

Customer community marketing programs, of which P3 communities are one form, have become increasingly popular over the last decade in many firms. When implementing these programs, marketers provide and maintain online and/or offline venues for their customers to interact with one another, with the understanding that consumer-to-consumer interactions in these venues will not only result in favorable outcomes for the firm but also stimulate customer learning. In addition to peer-to-peer problem solving, customer community programs can also focus on *giving a brand's fans opportunities to socialize with one another* (e.g., Harley Davidson's HOGs), *sharing personal experiences and providing recommendations* (e.g., movie reviews on the Netflix site), or on *generating new product ideas* (e.g., the Lego Mindstorms User Panel that helped design the Mindstorms NXT product line).

Several recent studies have documented positive effects of customer community marketing programs. These studies have shown that participation in customer communities increases engagement with the firm's brand(s) (e.g., Muniz and O'Guinn 2001; McAlexander, Schouten, and Koenig 2002) and commitment to the community itself (Mathwick et al. 2008), creates small friendship groups of loyal customers (Bagozzi and Dholakia 2006), increases referrals (e.g., Chen, Iyer, and Padmanabhan 2002), raises members' motivations to help other customers (e.g., Algesheimer, Dholakia, and Herrmann 2005), and generates useful input into the design of new products (e.g., Nambisan and Baron 2007).

In contrast to the outcomes of customer participation in communities, its drivers have received comparatively less attention. The particular context of P3 communities and their importance for customer education calls for an examination of the central role of customer learning through the voluntary provision of service support by one customer to another one. The issue of how community design features contribute to learning and social identification with the P3 community also remains to be explored.

To summarize, although P3 communities are potentially a widely applicable type of services marketing program, there is a dearth of research seeking to understand customer learning and the factors that firms can impact to stimulate learning experiences between customers. Our goals in the present research are to address these issues by making the following contributions.

First, relying mainly upon learning theories from organization science, we study the critical role of customer learning in service support in general and P3 communities in particular. We show that learning is a central driver for customers to participate in P3 communities contributing to customers' perceived benefits. Furthermore, drawing upon the social constructivist view (e.g. Lave and Wenger 1990; Seely Brown and Duguid 1991), we argue that learning in P3 communities is of a highly contextual nature as knowledge is constructed through the interactions of social network members, i.e. the community customers.

Second, we study two broad types of factors that assist customers in achieving a learning experience, and which firms can manage, in order to influence P3 effectiveness directly: (1) characteristics of information generated and transmitted in the P3 community, and (2) specific community design features. Companies can influence information characteristics by moderating the community and establishing norms of behavior. Specific community design features facilitate management of the community without the company intruding in the customer interactions. Furthermore, the knowledge construction that happens through the interactions will lead to a social identification with the community. Customers engage in social interactions with one another, not only to provide service support, but also to socialize, build, and maintain

relationships (Bagozzi and Dholakia 2006). As brand community studies have shown, communities anchor its members to themselves and to the brand by creating a sense of social identification (e.g., Algesheimer et al. 2005).

Third, drawing upon the influential literature in services marketing that distinguishes between customers' functional and social benefits (e.g., Beatty et al. 1996; Gwinner, Gremler and Bittner 1998; Rosenbaum and Massiah 2007), we apply this distinction to study how learning and social identification influence the benefit perceptions of P3 community members. Specifically, two different benefits, functional benefits from the service-support-related knowledge obtained and shared through community participation, and social benefits received from networking with other customers (and firm employees) on the site are examined, and their effects on customer behaviors are analyzed.

Through these means, the primary contribution of this paper to the services literature is that it offers a theoretical explanation as to how customers learn in participating in P3 communities, thereby creating functional and social benefits and delivering service support to their fellow customers in these online venues. The proposed framework and findings also shed light on what firms can do to achieve cost-efficient customer education, while at the same time enhancing the service delivery process in P3 communities, and facilitating customer voluntary performance. These issues are extremely relevant to contemporary service research (Bettencourt 1997; Rosenbaum and Massiah 2007).

THEORETICAL BACKGROUND

As knowledge is a primary resource, organizations spend considerable time and effort on the creation of knowledge. In line with the service-dominant logic, skills and knowledge form the basic unit of exchange between organizations and their customers (Vargo and Lusch 2004). Existing research has so far mainly focused on internal organizational learning (e.g. Moorman 1995; Sinkula 1994). However, customers also embody a wide base of skills, sophistication and interest (Prahalad and Ramaswamy 2004; Vargo and Lusch 2004), and present an often untapped

resource of knowledge. Companies that leverage their customer base for learning can achieve important performance benefits, such as reducing operating costs and creating added value to customers through increased product quality (Ofek and Sarvary 2001). Especially in service support, knowledge management plays a crucial role (Davenport and Klahr 1998). Service support offers the means to exchange knowledge embedded in context, and both companies and customers can reap learning benefits. As outlined above, virtual P3 communities offer a low cost venue for service support between customers. Many P3 communities share characteristics of electronic networks or communities of practice in the sense that they are "self-organizing, open activity systems" (Wasko and Faraj 2005, p.37), with the shared practice being service support delivery. Additionally, P3 communities are often comprehensive repositories of service support knowledge, making them an important ingredient of the value proposition that firms offer their customers (Davenport and Klahr 1998; Jeppesen and Frederiksen 2006).

As P3 communities' primary purpose is problem-solving (Mathwick et al. 2008), customer learning plays a central role in their success. The knowledge that a firm's customers possess regarding its products, in particular, how to choose and use them, is a significant, valuable, and archivable resource, especially for complex products (Bettencourt 1997). P3 communities exist to tap into, and disseminate this knowledge effectively to the participant base. For the individual member, this knowledge exchange translates into *learning*, which is defined as the customer's perceptions of increase in his or her own product expertise. Often, customers come to these communities for the first time because of the need to solve a specific problem. Once they receive the solution from the community, and hence have learned, they are captivated by the experience and become and stay a member themselves. Despite a growing body of research on the motivations of customer community participation (e.g. Algesheimer et al. 2005; Muniz and O'Guinn 2001), no study thus far has investigated the role of learning.

Drawing on the social constructivist theory on learning (e.g. Lave and Wenger 1990, Seely Brown and Duguid 1991) and literature on group learning (e.g. Argote, Gruenfeld, and Naquin 2001), we postulate that members of P3 communities construct knowledge through

interacting with other P3 community members. Thus, knowledge production happens within the social network of the community. Guided by the problem solving nature of the P3 community, individuals give each other access to their experiences to create collective community knowledge. The collectively constructed group knowledge often results in novel insights that no individual possessed alone, thereby stimulating learning.

In complex product settings, learning by customers is essential to the evolution of their relationship with the firm. Not only must customers learn how to use the product/ service such as eBay's trading platform or Hewlett Packard's enterprise management software, but they must also learn the scripts, that is, cognitive knowledge structures, involved in doing business with the firm (e.g., Chebiat and Kollias 2000). This learning is effortful and imposes what marketing researchers have termed "procedural switching costs" on customers (Burnham, Frel and Mahajan 2003), increasing repurchase intentions in some instances (Jones et al. 2007). Furthermore, customer learning can result in significantly lower inbound service costs as the community takes over service support from other employee-intensive channels, e.g. service call centers (Wiertz and de Ruyter 2007).

In P3 communities, customers learn in vicarious and interactive ways, from the anecdotes, suggestions, and ideas of other members. The created knowledge is thus dependant on the members involved rather than on the pure truth. As members report not only short questions and/or manual-like answers but also share information on the situation, intentions, and feelings about an issue or action, they are able to convey context (Majchrzak, Malhotra, and John 2005). The context information contributes substantially to the learning experience, as it stimulates effective thinking (Tyre and von Hippel 1997), and supports information prioritization and interpretation (Cramton 2001). Additionally, in most P3 communities, participants can access knowledge repositories such as records of prior conversations, product manuals, user guides, 'hacks' from other members, and archives of FAQs, that most P3 communities store (Wasko and Faraj 2005). The community site constitutes a knowledge base of all past incidents to aid the

solutions of similar problems in the future and is therefore the collective memory of the individual interactions.

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

Our conceptual framework explains the central role of learning from participating in P3 communities, along with its antecedents and effects on perceived benefits and behaviors. The proposed framework draws upon knowledge management theory (Gray and Meister 2004; Seely Brown and Duguid 2002), recent marketing studies of customer communities (Algesheimer et al. 2005; McAlexander et al. 2002), and is anchored in the theoretical distinction between functional and social benefits made by services marketing researchers (e.g., Beatty et al. 1996; Gwinner et al. 1998). The framework is developed in detail next, and is graphically depicted in Figure 1.

[Insert Figure 1 about here]

Antecedents to learning

If learning by individual participants is the P3 communty's heart-beat, the flow of service information is the life-blood that nourishes it. Theories of knowledge management postulate that the quality and degree of learning by individuals are influenced by supply-side factors. The primary factor enhancing learning has been found to be quality of information that flows within the community, as characterized by its diversity, updatedness and accuracy (Gray and Meister 2004; Hansen, Nohria, and Tierney 1999; see Seely Brown and Duguid 2002, for a discussion). Furthermore, knowledge management research distinguishes the accuracy of information from its diversity and updatedess, when considering how information that is transmissible and contextual translates into knowledge that is put to use for problem-solving (Thompson 2005; Wasko and Faraj 2005). In Ryle's (1949) classic terminology, "know what" (information) leads to "know how" (learning).

We expect that *diverse information* will affect users' learning positively for at least two reasons. The first is that service support for complex products necessarily requires information such as data, advice, and diagnoses, which is mostly situation-specific and unique (Das 2003). A

broader information base is therefore more likely to provide the specific answers that a customer is looking for. The second reason has to do with how information is exchanged in customer communities. Customers exchange information differently with one another than they do with employees. When helping others, customers are more likely to recount personal experiences, outcomes and stories heard from others. In contrast, employees are likely to use their formal training and the firm's process guidelines when providing support (Leigh, Peters and Shelton 2006; Seely Brown and Duguid 2002).

Furthermore, because such service support settings have more variability and complexity associated with them, elaborate and complex service scripts are more effective under these circumstances (Chebat and Kollias 2000). Consequently, the diverse, flexible, and story-driven approach of customer-generated support in the P3 community is likely to work well. To meet these requirements, a large base of different personal experiences and stories is valuable to be able to find a match for a particular request for service support within the P3 community (Das 2003). The following exchange taken from eBay's "Seller Central" bulletin board is illustrative. On April 14, 2008, a novice eBay seller *padre-bill* posted the following request:

> "I wish someone would send me some pointers, I have trouble selling my vintage Hot Wheels Match Box cars. They never sell, despite my clever sales pitch."

The query received several responses. *Bzabu*, an experienced eBay book-seller, had the following advice for *padre-bill*:

> "My buyers seem to like that I offer them half-priced insured shipping if they buy three or more of their book listings. It's certainly inspired several people to buy multiple listings – one fellow recently bought 10 books… you could do the same thing."

Another experienced cookware-seller, *mcgrrr* chimed in with his/her advice:

> "Hi Padre: How are you with writing short e-books? If your specialty is hot wheels and match box cars, you could research the history and write a little e-book to include with your sales acknowledgment email as a bonus for the purchase. That's one thing we've been doing with our Rachael Ray knife sets and

sharpeners. Communication is golden with today's reality. So the more you can communicate the better."

The presence of people who could provide the stories that were relevant to padre-bill's specific question and helped answer it underscores the value of diverse information in the P3 community. Not only do such stories make the advice more vivid and accessible to the customer seeking it, but they also increase its credibility and constitute a marker of brand community (McAlexander et al. 2002; Muniz and O'Guinn 2001).

Additionally, as knowledge management theory posits (e.g., Seely Brown and Duguid 2002), to be able to create useful knowledge for customers, the information in the P3 community must be provided in a timely fashion, and it must be accurate. Service support for complex products is often time-bound in the sense that the problem must be fixed as soon as possible so the customer can use the product. Many customers, especially those in business settings, have limited opportunities to correct mistakes that may occur from incomplete or outdated advice, and limited use for the assistance at some distant future time point. Information accuracy is essential for perceived learning because customers will have less confidence in information that is perceived as inaccurate, and will consequently limit their use of that information (Fuerst and Cheney 1982). They might not even consider inaccurate information at all, so that learning is majorly reduced. Consequently, *updated information* and *accurate information* are both expected to facilitate learning by P3 community users. Thus:

H1: (a) Diverse information, (b) Updated information, and (c) Accurate

information impact learning positively for the P3 community participant.

P3 community venues, which are usually online, must provide users with tools to enable communication and to manage the flow of information. Seely Brown and Duguid (2002) note that learning complex information within a community of practice is an inherently social experience - the nature, structure, and quality of the social interactions influence what the participant comes to know. Consequently, we expect these communication and information management tools, which we call site features, to facilitate learning for participants.

Most communication in P3 communities is from one user to another. So we expect learning to be influenced by P3 community site features that explicitly encourage and enable interpersonal interactions. In eBay's Help Forums, customers can interact on bulletin boards where users post messages and respond to requests asynchronously, and in chat rooms that allow them to contact and converse with other users in real time; these are examples of a site offering the *ability to communicate with other members*. Similar to networks of practice, these features facilitate direct interactions between P3 community users for exchanging information.

Additionally, many P3 communities offer the *ability to provide and display reputations* through numerical scores, status icons, and testimonials from other members. Reputations convey the magnitude and quality of the customer's past contributions to the P3 community. For example, in HP's Information Technology Resource Center (ITRC) forums (http://forums.itrc.hp.com), users' reputations are denoted by points, along with a hat (e.g., graduation cap, wizard's hat, etc.) and title. In this P3 community, customers requesting service support evaluate responses they receive, awarding points to each one using a 1-10 scale. These points are added to respondents' total points. As total points increase, responders' earn different titles that signify specific levels of expertise. For example, when they earn 250 points from other users by helping them, new members are awarded the title of "pro". With more points, an ITRC member can progressively become a "graduate" (500 points), a "wizard" (1,000 points), all the way to a 2-star Olympian (80,000 points). Likewise, in eBay's Help Forums, the reputation rating earned from prior trading is prominently displayed next to each participant's name. Such reputational site measures provide condensed yet diagnostic information regarding track records and reliabilities of P3 community users, and are expected to help participants evaluate quality of assistance (of those who are assisting) and degree of knowledge (of those who are being assisted), contributing to the knowledge creation process.

One site feature offered in many P3 communities is the *ability to customize the site*, tailoring it to suit their preferences and interests. For example, in eBay's Help Forums, a user who primarily sells items is able to display only seller-specific discussion boards, create alerts

which notify him or her when topics with specific key words are discussed, and choose other sellers as "Friends" to privately chat with them in real time. Such site customization features enable the customer to filter out irrelevant information, find the specific assistance s/he is searching for, and network strategically with useful members; these functionalities all increase the P3 community's knowledge creation possibilities for the customer.

To summarize this discussion, we hypothesize that:

H2: The abilities to (a) communicate with other members, (b) provide and display reputations, and (c) customize the P3 community site impact learning positively for the P3 community participant.

Effect of learning on functional benefits

In P3 communities, functional benefits are derived from the direct, information-based support that the customer receives to solve the specific service issue(s) s/he has through participation in the community. Online conversations allow the customer to engage in dialogue with other members about the service issue, including such things as pre-purchase decision making, potential causes and solutions of problems, etc. The cumulative expertise of the community is tapped into, and members' response(s) provide the customer with the information s/he is looking for. Organizational scientists refer to this interpersonal process as "interactive sensemaking" (e.g., Fombrun 1986).

In our proposed framework, we hypothesize that learning influences the P3 community participant's functional benefit perceptions positively. The primary reason that most customers visit P3 communities (at least to begin with) is to achieve an instrumental goal (Dholakia, Bagozzi, and Klein Pearo 2004). Learning helps fulfill the immediate service needs for these customers, and therefore provides functional benefits. For those providing the service, P3 community participation extends and deepens the person's knowledge base, making his or her own product use more effective. Indeed, supporting this notion, research has shown that as the person becomes more knowledgeable, his/her cognitive structures get modified, which makes

further manipulation and application of the person's knowledge base more effective (Gray and Meister 2004). Thus, we hypothesize:

H3: Learning impacts functional benefits positively for the P3 community participant.

Effect of learning on social identification

In studies of brand communities, social identification by members is conceptualized to be a central driver of participation (e.g., Algesheimer et al. 2005), and is considered to be an essential condition for a social group to be considered a community (Muniz and O'Guinn 2001). This construct captures the strength of the social relationships a customer has with other community members through a shared collective identity that is formulated and maintained by the person. The shared social identity is manifested by the customer categorizing himself or herself as part of the community, valuing this identity positively, and using it to create a shared consciousness. Identification also entails a demarcation (and de-valuation) of out-groups, thereby emphasizing dissimilarities with non-members (Abrams and Hogg 2004; Elsbach and Bhattacharya 2001).

In our conceptual model, social identification with the service support community plays an important role. It originates from the individual member's innate need for belonging, for association, and for acceptance by one's fellow customers (Baker 2001), and manifests in a sense of "we-ness" felt by the individual. As one example, in discussions on eBay's Help Forums, many buyers extol the possibilities of getting excellent deals in online auctions, and scorn users of retail sites like Amazon.com and Buy.com for not using eBay and benefiting from the deals.

As another example, a long-running active thread (running since October 2004) on the eBay Seller Central discussion board is titled "You know you're an eBay seller when…" Contributions from community members to this thread include "When you want to leave positive feedback for the guy at Taco Bell when he gets your order out fast" (aprile612), "The local USPS clerks know more about your personal life than your family does" (wmv-feller), and "When your boyfriend used to bring home roses to surprise you, now he brings boxes" (knb_supply). Such statements of devotion to eBay strengthen members' sense of "we-ness." Additionally, because

the site is sponsored by the firm, social identification may also result as users perceive themselves to be organizational insiders (Bhattacharya and Sen 2003) or special customers that the firm values.

Prior research has shown that identification with the brand community is driven by participants' interactions with one another within the community and the derivation of value from these interactions. For example, Algesheimer and colleagues (2005) showed that social identification is affected positively by the quality of the customer's relationship with other community members, and McAlexander and colleagues (2002) found heightened identification with the community after customers had participated in a Brandfest event spanning several days.

The actual knowledge acquired and shared in the community is also an important input into social processes. Customers engaging in joint sensemaking and problem solving also develop strong interpersonal ties (Wasko and Faraj 2005). Furthermore, Dholakia, Bagozzi, and Klein Pearo (2004) found that participants that were able to achieve their functional goals were more likely to remain engaged in the community and help other, newer, members. Research on communities of practice also supports the view that engagement in the community is increased as the participant learns more from participating in it. Seely Brown and Duguid (2002) summarize this perspective well: "By learning … (in the community of practice) an individual is developing a social identity." (p. 138). In P3 communities, we expect learning to impact social identification positively in the sense that the more the customer learns from the P3 community, the more s/he is likely to identify with it. This is summarized in the following hypothesis:

> **H4:** Learning impacts social identification with the P3 community positively
> for the participant.

Antecedents to social identification

The three site features discussed above, i.e. the ability to communicate with other members, the ability to provide and display reputations, and the ability to customize the P3 community site not only influence learning, but also impact participants' social identification with the community. Direct communication between community participants is expected to

increase the user's bonds to each other and to the community, leading to greater social identification.

Similarly, reputation ratings provide prestige to the owner of the rating enhancing his status within the community and thereby giving members a feeling of pride. Furthermore, they give diagnostic information to the community members seeking assistance; they can use the ratings as lenses to filter the abundant and (sometimes) conflicting help proffered to them. Due to these reasons, we expect the ability to provide and display reputations to have a positive effect on the customer's social identification with the P3 community.

Furthermore, customization enables community participants to tailor the community to their own wishes thereby increasing their sense of belonging. We expect the site features to engender a sense of community and strengthen the categorization processes that lie at the heart of identification. To summarize this discussion, we hypothesize that:

> **H5:** The abilities to (a) communicate with other members, (b) provide and
> display reputations, and (c) customize the P3 community site impact social
> identification positively for the participant.

Effect of social identification on social benefits

P3 community participants also derive benefits from being able to network, i.e., to socialize and form relationships with other community members for various product-related, personal and/or professional reasons (e.g., Burt 1997). Consistent with Beatty and colleagues' (1996) nomenclature, we call these as social benefits in our framework. In eBay Help Forums, for example, it is quite common for sellers of a particular product category to share knowledge regarding price trends, discuss specific fraudulent bidders, and to talk about auction listing tactics that do and do not work. In many such cases, service support discussions are interwoven with social conversations.

In P3 communities, in order to receive assistance quickly and fully, it is essential for participants to get to know other members. Answering questions posed by other members, introducing new discussion topics, and contributing new knowledge to the community are all

ways of networking. In general, considerable prior research in organizational contexts (Baker 2001) and brand communities (e.g., Leigh et al. 2006) has shown that networking can lead to significant social benefits for participants such as adding to one's contacts for future employment searches, greater access to attractive business opportunities and capital, and early knowledge of innovations. Thus, identifying with the community by bonding with its members increases social benefits for the individual. Consequently, we hypothesize a positive path from social identification to social benefits.

> **H6**: Social identification impacts social benefits positively for the P3
>
> community participant.

Consequences of functional and social benefits: Helping oneself and helping others

In our proposed model, the ultimate dependent variables are helping oneself and others in the P3 community. These two variables correspond closely to receiving information and giving information respectively, that prior research has identified as central to the functioning and maintenance of virtual communities (e.g., Ridings, Gefen and Arinze 2002). They also correspond to what Hennig-Thurau et al. (2004) discuss as consumption-related utility and concern for other customers as part of focus-related utility. Functional and social benefits lead to perceptions of helping oneself and willingness to help others respectively. These linkages are based on the reasoning that the greater the functional usefulness of information received from the P3 community, the greater will be the perception that one is helping oneself through participating therein. The perception that one has helped oneself is important from a managerial standpoint as it is likely to be an influential input into assessment of customer satisfaction, and lead to more relational behaviors by the customer.

Similarly, the greater the perceived social benefits, such as from networking with other community members, the more the participant will feel obliged to reciprocate and to help others in the P3 community (Mathwick et al. 2008). This prediction is in line with brand community studies which show that the community exerts social influence on members, leading them to play active roles in group activities and projects (e.g., Algesheimer et al. 2005; Muniz and O'Guinn

2001). It is also consistent with services marketing research on customer voluntary performance which has shown that customers receiving social support are more likely to cooperate with other customers (Rosenbaum and Massiah 2007).

Additionally, we also expect cross-effects, i.e., greater functional benefits should increase the participant's willingness to help others because of norms of reciprocity that accompany intrinsically motivated behavior (Dholakia et al. 2004). This is supported by services marketing studies which have shown that perceptions of receiving functional support impact customer cooperation positively (Rosenbaum and Massiah 2007). Likewise, greater social benefits should increase the P3 community participant's perceptions of helping oneself because networking and integration within the community does generate, or contribute to, valued individualistic ends for the person such as quicker and more enthusiastic assistance, a greater degree of product expertise, and a more useful network of community acquaintances. These predicted relationships are summarized in the following hypotheses:

> **H7**: Functional benefits impact (a) perceptions of helping oneself, and (b) the
>
> willingness to help others positively for the P3 community participant.
>
> **H8**: Social benefits impact (a) the willingness to help others, and (b)
>
> perceptions of helping oneself positively for the P3 community participant.

MAIN STUDY

The research hypotheses were tested with a survey-based study conducted in cooperation with eBay Germany, and their generalizability was assessed with a second survey-based study conducted in cooperation with a global B2B software firm. The data was analyzed using structural equation modeling methodology.

Research Setting

eBay is currently the world's largest online auction site. To participate in its auctions, buyers and sellers must learn to use eBay's trading platform effectively. The trading platform is complex and frequently updated software, with numerous features and decision variables that

customers must know how to use. To trade effectively, customers must also learn eBay's policies, various legal aspects of buying and selling in online auctions, and how to trade with international users through the site. Furthermore, as they continue using the trading platform, users need encouragement to persist when they make personally costly mistakes, assistance with troubleshooting on a frequent but irregular basis, and updating of their knowledge when the site adds new functionality. Service support is crucial for all these customer needs.

To provide its customers with a credible and effective avenue to receive service support, eBay runs a variety of customer communities on its site called the "Help Forums" (http://hub.ebay.de/community). Help Forums are peer-to-peer question and answer discussion boards and chat rooms, organized by dozens of specific topics such as "International Trading", "Packaging and shipping", "Technical issues", etc. In these communities, hundreds of eBay users participate daily in discussions for giving and receiving service support to one another.

Development of Measures

We derived measures for two of the constructs from existing scales, adapting them to suit the context of our study. Specifically, the learning items were similar to those of the learning scale used by Blazevic and Lievens (2004), and social identification items were similar to those of Bhattacharya et al.'s (1995) measures of identification. The information measures were adapted from Muylle et al.'s (2004) study.

For the remaining measures, we developed new scales using the procedure recommended by Churchill (1979). First, we conducted in-depth interviews with the community manager and seven active customers of the P3 community of the global software firm, and with the marketing manager of eBay Germany to understand how these experts perceived and described the constructs. Based on this exploratory research, we generated an initial set of items.

Next, to enhance the constructs' face validity, we worked with eBay Germany's marketing manager and six other community experts within the firm to evaluate each item with respect to wording, fit with construct, completeness, and uniqueness. We rephrased improperly worded items and deleted those that did not fit the construct definition. In the final step, we

invited hundred eBay Help Forum users to participate in a pretest, obtaining 24 fully completed responses. These respondents provided open-ended feedback on the questionnaire. We used this information to make several minor changes to wording and finalized the items used for the main study. English translations of the study measures and the original German measures are provided in Appendix 1. Responses were measured with 7-point Likert-like scales.

Participant Recruitment

The survey was sponsored and conducted by eBay Germany, and was limited to active Help Forum users. To qualify for participation, respondents had to have at least ten Help Forum page-views within the past year[1]. A total of 17,821 customers qualified for the survey using this criterion. The firm invited these P3 community participants to participate in a web-based survey in exchange for inclusion in a raffle. The survey was made available online for a period of four weeks, and was introduced as "a survey concerning your usage of our service communities." Participants completed the survey in approximately twenty minutes. Of the participants who fully completed the survey, 50 were randomly chosen to receive € 20 gift certificates to a retail web-site. The firm collected the survey data, and provided us the data file.

Sample Characteristics and Measures

Of the 17,821 customers invited to participate in the survey, only 15,984 had valid email addresses. Of these, 2,299 P3 community participants completed the survey, resulting in a response rate of 14.4%. Note that because of eBay's customer contact policies and other scheduled marketing campaigns, reminder message(s) could not be sent to encourage participation from non-respondents. We also did not have information of respondents' timing of answering the survey, so we could not compare early vs. late respondents. As a result, it is possible that the responses may not be representative of those who did not answer the survey. All of the analysis that follows is based on these 2,299 respondents.

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[1] This criterion was determined upon consultation with the firm's marketing managers. Respondents were selected based on page-view data available from the firm's customer database.

We gathered the following demographic variables in the survey: gender, age, and duration for which the respondent had been an eBay customer. In addition, we also asked respondents whether they bought, sold, or performed both trading activities on eBay. To verify whether the sample was different from the overall eBay customer population, eBay Germany provided us with the demographic variables of a random sample of its larger customer base that did not participate in the Help Forums. The size of this sample was 70,700. The demographic composition of these two samples is provided in Table 1.

[Insert Table 1 about here]

As can be seen, the surveyed sample of Help Forum users is similar in gender, age, and duration of tenure to the larger eBay customer sample of non-community users. This qualitative comparison provides some assurance that the survey respondents resemble the larger customer base, and therefore suggests the possibility that any bias stemming from non-response may not be severe. The similarity is also useful from a managerial standpoint because it indicates that community participants (respondents) do not appear to be self-selecting themselves into the P3 community. Thus, the firm may utilize community tools to engage its mainstream customers and get them to participate in the community.

<u>Preliminary Analysis</u>

Our structural equation model (SEM) includes all survey respondents ($N = 2,299$) and was used to test the hypotheses. We ran all models that we describe subsequently using the LISREL 8.80 program (Jöreskog and Sörböm 1999). We assessed goodness-of-fit of the models with χ^2-tests, the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR), the Non-Normed Fit Index (NNFI), and the Comparative Fit Index (CFI). Further details regarding these indices can be found in Bentler (1990), and Marsh, Balla, and Hau (1996). Satisfactory model fits are indicated by non-significant χ^2 tests, SRMR and RMSEA values $\le .08$, and NNFI and CFI values $\ge .90$. We performed all analyses using covariance matrices (Cudeck 1989).

RESULTS

<u>Measurement Model Evaluation</u>

Internal Consistency. We used two measures to evaluate internal consistency of constructs. The composite reliability (ρ_ε) is a measure analogous to coefficient α (Fornell and Larcker 1981, Equation 10; Bagozzi and Yi 1988), and the average variance extracted (AVE; $\rho_{VC(\xi)}$) estimates the amount of variance captured by a construct's measures relative to random measurement error (Fornell and Larcker 1981, Equation 11). Estimates of ρ_ε above .60 and $\rho_{VC(\xi)}$ above .50 are viewed as indicating good internal consistency (Bagozzi and Yi 1988; Fornell and Larcker 1981). As Table 2 shows, the values for all constructs are significantly greater than the stipulated criteria and therefore are indicative of good internal consistency.

[Insert Table 2 about here]

Discriminant validity. We built a confirmatory factor analysis model with 12 latent constructs and 39 measures. Results showed that the model fit the data well. The goodness-of-fit statistics for the model were as follows: $\chi^2(636) = 3339.9$, $p \approx .00$, RMSEA = .04, SRMR = .03, NNFI = .97, CFI = .97. The standardized factor loadings ranged from .74 to .98 and were statistically significant at the α = .95 level. This provides evidence that the constructs exhibited convergent validity.

We evaluated discriminant validity of the model constructs using the procedure suggested by Fornell and Larcker (1981) and widely used by other researchers (e.g., De Wulf, Odekerken and Schroder 2001; Ramani and Kumar 2008). The AVE ($\rho_{VC(\xi)}$) for each of the twelve factors was compared to the highest variance that the factor shared with other factors in the model. These results are provided in Table 2. As can be seen, the AVE extracted for each factor was always greater than the highest shared variance. It is worth noting that Fornell and Larcker's procedure is viewed to be a demanding test for discriminant validity (Grewal, Cote, and Baumgartner 2004; Ramani and Kumar 2008). As this criterion is satisfied in our study, an inference error due to multicollinearity is also unlikely (Ramani and Kumar 2008). Table 3 provides the correlations between constructs, corrected for measurement error.

[Insert Table 3 about here]

Common method variance. As all of the survey measures were collected with a common instrument, the potential for method variance exists. To assess whether a single latent factor could account for all of the manifest variables, we employed the latent methods factor suggested by Podsakoff and colleagues (2003)[2]. These results are discussed in detail in the next section.

Structural model estimation

Considering first the fit statistics for the full model hypothesized in Figure 1 [$\chi^2(671) =$ 5174.8, p ≈ .00, RMSEA = .06, SRMR = .07, NNFI = .95, and CFI = .95], the χ^2 is significant (*p* < .05); however, this is usually the case for large sample sizes like the one we have. All the other statistics are well within their respective acceptable ranges, which indicates a good model fit. Table 4 provides the standardized coefficients for the paths in the structural model.

[Insert Table 4 about here]

The impacts of information characteristics on learning are addressed in H1a-c. Results revealed that two of the three paths, from diverse information (β = .53, p < .001), and updated information (β = .18, *p* < .01) to learning are significant, but accurate information did not have a significant effect. Next, results revealed that paths from ability to communicate with other members (H2a; β = .26, *p* < .001) and ability to customize the site (H2c; β = .21, *p* < .001) to learning were both significant, but the path from ability to provide and display reputations to learning was not. Thus H2a and H2c received support, but H2b was not supported. Taken together, 83 percent of the variance in learning is explained by the antecedents in the structural model. Considering H3 next, the path from learning to functional benefits is positive (β = .28, *p* < .001), explaining 28 percent of the variance in functional benefits. Also, supporting H4, the path from learning to social identification was significant (β = .89, *p* < .001).

The impacts of site features on social identification are addressed in H5a-c. In this case, two paths, from ability to communicate with other members (β = .37, p < .001) and ability to

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[2] We thank a reviewer for suggesting this additional analysis to rule out the effects of a common method bias on the model estimates.

provide and display reputations (β = .11, p < .01) were significant. However, the path from ability to customize the P3 community site to social identification was not significant. The results support H5a and H5b, but not H5c. 79 percent of the variance in social identification is explained by its antecedents. Supporting H6, social identification impacted social benefits positively (β = .78, p < .001), explaining 56 percent of its variance.

The last two hypotheses address the effects of functional benefits and social benefits on helping oneself and helping others. H7a and H7b are both supported as the paths from functional benefits to helping oneself (β = .66, p < .001) and helping others (β = .28, p < .01) were positive. The paths from social benefits to helping others (β = .79, p < .001) and helping oneself (β = .19, p < .001) were also positive, supporting H8a and H8b, respectively. 55% of the variance in helping oneself and 26% of the variance in helping others is explained by their respective antecedents.

Additionally, to further rule out the effects of common method bias, we employed Podsakoff and colleagues' (2003) latent methods factor approach (see MacKenzie, Podsakoff and Paine 1999 for an application). Using this approach, all of the measures in the structural model hypothesized in Figure 1 were loaded on to a single latent factor in addition to their respective factors. This additional factor is the common methods factor, allowing us to control for the portion of the variance that is attributable to gathering all the measures with the same method. The results of this re-estimation are provided in Table 4. Note that in this new model, equality constraints were imposed on the loadings from the methods factor to its indicators to obtain convergence. This is consistent with the approach used by other researchers employing this approach (e.g., MacKenzie et al. 1999; McKay et al. 2007). As can be seen, some paths such as the one from ability to customize the site to social identification increased slightly in strength, whereas others such as the path from updated information to learning decreased somewhat strength-wise. Overall, the results were substantively similar, indicating that the pattern of significant relationships was not affected significantly by common method bias.

TESTING GENERALIZABILITY OF THE THEORETICAL FRAMEWORK

As noted earlier, we conducted a second, separate survey in cooperation with a global sample of active participants in a P3 community hosted by a multinational B2B software firm (N = 204) to test our proposed framework's generalizability across service support communities. The survey included essentially similar measures to the eBay Germany study, modified to suit the firm's P3 community. However, there was one difference. In this case, instead of measuring perceptions of helping oneself and helping others in the same survey, we measured participants' actual helping behaviors for a period of six months post-survey. Helping oneself was measured by the number of information seeking messages the user posted; helping others was measured by the number of messages in which the respondent helped others by answering their service support questions.

The hypothesized model fit the data well: [$\chi^2(131)$ = 456.5, p ≈ .00, RMSEA = .07, NNFI = .93, SRMR = .07, and CFI = .93]. The standardized coefficients of the structural model are provided in Table 4. As can be seen, the pattern of results strongly supports the proposed model, with significant and supportive results for 12 of the 16 hypothesized paths. Additionally, a comparison of the standardized coefficients for the eBay sample and this one reveals some interesting differences between the two samples[3].

For the B2B community, diverse information had less of an effect on learning than for the eBay sample, but accurate information was a significant driver of learning which it was not in the case of eBay. It could be that the eBay platform is more complex than the B2B platform for community participants, making diverse information more important in affecting learning in the eBay community. Likewise, accuracy of information may be more variable in the B2B community, and therefore impact learning more strongly. Supporting this possibility, the

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[3] Note that because the questions were worded differently and asked in different languages in the two samples to match the contexts of the P3 communities, we could not compare differences in strengths of coefficients using multiple-sample analysis procedures directly. Instead, we discuss the relative differences between the corresponding coefficients in the two samples.

coefficient for the path from ability to provide and display reputations to learning was higher for the B2B community as well.

Furthermore, learning had a stronger effect on social identification for the eBay sample, indicating that the eBay community organizers may need to focus on members' learning to a greater degree if they want to increase their connections to other community members and the brand. Finally, functional benefits impacted only helping oneself, and social benefits impacted only helping others in the B2B sample. Unlike the eBay sample, the cross-paths, from functional benefits to helping others, and from social benefits to helping oneself, were not significant. This could indicate that users participate in the B2B community for one or the other benefit, rather than for both as in the case of eBay community. Finally, implementing the latent methods factor approach (Podsakoff et al. 2003) again did not change the results substantially, confirming that common methods bias was not a significant concern for this sample as well.

These results further strengthen support for our proposed conceptual framework by showing that it generalizes to a different service support setting, that is, for a customer sample of a firm in a different industry. From a methodological standpoint, this replication makes a strong contribution as actual service support behaviors of respondents were measured in this study over a lengthy (six-month) period of time.

CONCLUSIONS

Summary of Findings and Implications

In the current research, we studied the drivers and the psychological processes underlying the benefits received by customers from participating in P3 communities. We found support for our conceptual framework in a sample of over two thousand active users of eBay Germany's Help Forums, and separately in a sample of over 200 users of a P3 community belonging to a global B2B software firm. Broadly speaking, the study highlights the importance of users' motivations in P3 communities, by showing that functional benefits derived from receiving service support and social benefits received from networking and social interactions with other

users lead customers to participate in the community marketing program to seek assistance and to help others. In addition, the study also demonstrates the crucial importance of providing an environment in the online P3 community that stimulates customer learning. P3 communities are primarily information sharing and service support environments, which are enhanced by offering social support. Understanding the drivers of customer learning adds to our understanding of the benefits that users can derive from participation in online P3 communities. Overall, these findings augment recent studies that have examined social influence and group processes in customer communities (e.g., Algesheimer et al. 2005; McAlexander et al. 2002) and advance the theoretical development of the customer-firm relationship paradigm (Beatty et al. 1996) into the customer-customer relationship domain. The current study also provides useful actionable guidance to community marketing program managers, making a number of specific contributions to existing services marketing and customer community research.

First, our research found that information quality is an important antecedent of the benefits derived by P3 community participants. In both samples, we found that information that is broad based and up-to-date impacts creation of knowledge for the members. Additionally, accurate information was also a driver of learning in the B2B community. These information-based aspects of service support can be controlled by community managers; however, their effective management does require a re-characterization of just how "hands-off" P3 community management should be, and what role the firm's employees should play in providing quality content in these communities. The implicit assumption made in current discussions of customer communities is that customers should be allowed to generate content entirely on their own, with employees playing a marginal role, in order to increase the users' trust in the community and in the firm (e.g., Porter and Donthu 2007; Thompson 2005). However, in practice, such exclusive customer participation is very difficult to achieve in P3 communities, and as our results indicate, might impact customers' learning adversely, if the quality of information generated is unreliable.

In both the P3 communities we studied, employees play significant roles. For example, in eBay Help Forums, employees called "pinkliners"[4] often take the lead in directing the flow of discussions, energizing flagging interactions, and providing assistance to users seeking support when none is forthcoming from other customers in a timely fashion. Indeed, eBay employees are beloved, trusted fixtures of many established, long-running Help Forums[5]. The current research supports the recommendation that community managers must monitor the variety of information they offer their P3 community's users, the timeliness with which support is provided, and the information's accuracy, enlisting firm employees if needed to maintain its quality. It is plausible for firms to employ varying levels of employee involvement, from active generation of service support on the one hand to passive "behind-the-scenes" moderation of conversations and discussion on the other.

Second, the functionality offered by the design features of the P3 community site was also found to play a key role not only in increasing users' knowledge, but also by strengthening users' identification with the community. Providing features that encourage participants to communicate with other users was found to have unalloyed positive effects on benefit-engendering processes across the two P3 community user samples. The ability to create and share their reputations with other community participants had a positive impact on identification with the community across both samples. Receiving peer recognition is an inherent need for many, and by investing in building up a good reputation, users are in fact investing their time and effort into the community. Once this is achieved, they feel a strong sense of belonging to the group in which they are respected. This reputation building feature also has a positive impact on learning in the B2B sample, but not the eBay sample. This differing result can probably be explained by the exact nature of the reputation systems that operate in these two communities. In the B2B sample, reputation is accumulated on the basis of the quality of answers that each user

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[4] When an eBay employee posts in the Help Forums, his or her post is highlighted in pink to clearly indicate to all users that an eBay employee has written it. This is an effective way of clearly demarcating employee participants in P3 communities and engendering trust in customer interactions with them and with each other.
[5] Personal communication with eBay community manager, April 2007.

provides over time. As such, it is a direct proxy for the expertise of a user. The reputation symbol displayed next to a user's name can be easily used to search for the most trustworthy answers, which should impact learning positively. In the eBay sample, in contrast, users build up their reputation mainly on the basis of their reliability and trustworthiness with regards to adhering to the terms of exchange contracts (instead of knowledge sharing). The eBay reputation system is thus less useful for new knowledge building of customers. The disparate effects of the ability to customize the community site across the two samples can also be explained by the difference in the specific features between the two communities. In the eBay community, users can customize a variety of aspects to the site and make sure that they only see information relevant to them. Consequently, the ability to customize the site affects learning positively. In comparison, the customization features of the B2B community are much more limited, and therefore do not affect learning. Interestingly, providing users the ability to customize the P3 community site to suit their personal preferences did not impact social identification in either sample. These features seem to be predominantly related to information display preferences and not to the social communication aspects of the P3 community.

Summarizing the effect of site features, which are in direct control of the firm sponsoring the P3 community, it becomes clear that the possibility to communicate with other users via various channels is key to the social identification process with the community. Reputation systems also enhance this identification process, since the status that users receive through the system is based on, and limited to, their contributions within this specific social group. However, the exact design of the reputation system will determine what effect it has on learning. If learning is the P3 community sponsor's main goal, the system should be designed in such a way that reputation points are accumulated primarily on the basis of the quality of contributions provided to the P3 community. Finally, extensive customization features should also be provided to enhance the customer learning experience.

Third, we were able to link functional and social benefit perceptions to participants' self-reports of helping oneself and helping others (in the eBay Germany user sample) and to actual

postings seeking information and providing help to other users over a six-month time span post-survey (in the B2B sample). This finding is of significant managerial importance because it directly links evaluations of benefit perceptions from P3 community participation and their antecedents to actual beneficial customer behaviors. It adds to the small corpus of studies showing observable beneficial effects of customers' communities on customer behaviors (e.g., Algesheimer et al. 2005).

Fourth, and in a more general sense, our findings extend the scope of the "customer voluntary performance" construct studied by prior research. In addition to behaviors such as customer suggestions for service improvement, cooperation and conscientiousness during the service encounter, and positive word of mouth and recommendations identified by prior research (Bettencourt 1997; Rosenbaum and Massiah 2007), participation in P3 communities constitutes another distinct and important voluntary service by the customer, contributing significantly to the firm's service quality. Our findings reveal that this unique sort of voluntary performance where the customer interacts with other customers to produce service provide distinct benefits to the firm beyond the benefits of customer-firm interactions studied by prior research (Bettencourt 1997; Mills and Morris 1986).

Additionally, it is important to position the current research relative to Mathwick, Wiertz and de Ruyter's (2008) recent study examining social capital production in a virtual P3 community. Conceptualizing social capital as an intangible resource embedded in, and accumulated through a particular social structure, they examined its antecedents (norms of reciprocity, voluntarism, and social trust). The key dependent variable in their study was the consumer's perceptions of commitment to the community (e.g., "The relationship I have with this (P3 community) is important to me.") The current study adds to their findings by showing that distinct attributes of information in the P3 community and site features may additionally contribute to social capital formation (captured here through social identification and social benefits) over and above the community's norms. Likewise, we extend Mathwick et al's (2008)

results to include more consequences such as propensities and actual behaviors to help oneself and other community members.

Limitations and Future Research Opportunities

In spite of these contributions, we acknowledge the limitations of this research. The survey done with the eBay Help Forum sample was conducted at one time point and employed self-reported measures of helping oneself and others. To counter this limitation, we took several steps; in the analyses, we established discriminant validity of constructs through multiple means, verified that the model was robust to common method variance, tested generalizability of the conceptual framework in a different context with another sample of P3 community participants, and included actual participant behaviors over a six-month period as the ultimate dependent variables in the second study. We also explicitly controlled for possible common method bias and did not see any significant changes in the strength of the relationships in our model. Nevertheless, more research using observable dependent variables, such as actual participation, length of contributions, quality of contributions (e.g., measured by user ratings), etc. should be conducted to validate existing findings without the thread of common method bias.

Another shortcoming of our study is that we were not able to control for measurement invariance across the two samples as is common in cross-cultural studies (Steenkamp and Baumgartner 1998). This is because we were forced to customize our studies, particularly the measures we used, to the specific suggestions and requirements of the managers of the two collaborating firms. Consequently, the measures differed in wording and description, and could not be directly compared quantitatively via multiple-sample analysis in LISREL[6].

Most importantly, more research is needed on the efficacies of different approaches to managing firm-hosted online P3 communities, and the conditions in which some of these management approaches work better than others. In studying effective communities of practice,

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[6] We are grateful to a reviewer for insightfully pointing out this limitation.

Thompson (2005) made the distinction between "seeding structures" and "controlling structures" that is relevant and further illuminates our findings. Seeding structures are those "monuments, instruments and points of focus that are required as a basis for communicative interaction" (Thompson 2005, p. 162) and which can potentially encourage future collaboration between community members. In contrast, those elements of the community that directly control current collaboration are called controlling structures. Based on an observational study of an organizational community of practice conducted over 16 months, Thompson (2005) recommended that firms should judiciously employ seeding structures as they support users' intrinsic motivations by providing appropriate venue elements, but carefully refrain from the use of controlling structures because they divert users' attention away from the central discussion issues, arouse reactance, and engender suspicion among community members. Coupled with this distinction and recommendation, our findings regarding effects of information and site features highlight the need to gain an in-depth understanding of the structural elements, policies, and affordances of P3 communities that are seen as seeding vs. controlling structures by its users, and how they affect user motivations, relational orientations toward the firm, and customer behaviors. Likewise, research on the roles of the firm's employees within virtual P3 communities, how they are viewed by the community, and their modes of interaction with participating customers is likely to be fruitful.

In conclusion, online P3 communities offer a unique approach of delivering low-cost service support to the firm's customers for a variety of products and services, and advance services marketing research to the area of customer-customer interactions. As such, they offer researchers a fertile domain to study services marketing processes and phenomena.

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TABLE 1

Comparison of Survey Sample and Larger Sample of eBay customers on Demographic Variables

P3 community survey respondent characteristics (N = 2,299)	Sample of eBay customers: Non-participants in Help Forums (N = 70,700)
Gender: 56.3% female, 43.7% male	Gender: 53.2% female, 41.4% male, remainder unspecified
Age: 9.1% under 25, 20.7% between 25-34, 33.5% between 35-44, 23.4% between 45-54, 13.3% over 55	Age: 11.4% under 25, 23.8% between 25-34, 35.4% between 35-44, 19.3% between 45-54, 11.1% over 55
eBay Customer duration: 75.8% for more than two years, 1.7% for less than 6 months	eBay Customer duration: 87.5% for more than two years, 1.3% for less than 6 months
Trading activity: 33.1% classified themselves as buyers only, 11.6% classified themselves as sellers only, 55.3% said they were both buyers and sellers	Trading activity: Not available

TABLE 2

Means, Standard Deviations, Reliabilities, and Internal Consistency Statistics for Construct Measures

Construct	Number of Measures	Mean	Std. Dev.	AVE $(\rho_{VC(\xi)})$	Composite Reliability (ρ_ε)	Highest shared variance
Diverse information	4	4.83	1.55	.77	.86	.71
Updated information	2	4.63	1.51	.85	.92	.79
Accurate information	3	4.77	1.53	.92	.86	.67
Ability to communicate with other members	2	4.51	1.67	.67	.90	.53
Ability to provide and display reputations	5	4.53	1.80	.87	.93	.74
Ability to customize the site	2	4.45	1.73	.75	.85	.71
Learning	4	4.66	1.77	.91	.95	.79
Social identification	2	2.47	1.85	.71	.85	.65
Functional benefits	4	4.42	1.69	.87	.93	.71
Social benefits	4	3.07	1.92	.85	.92	.79
Helping oneself	3	5.18	1.89	.86	.92	.71
Helping others	4	2.84	1.87	.93	.97	.83

TABLE 3
Correlation matrix of constructs in theoretical framework for full sample ($N = 2,299$)

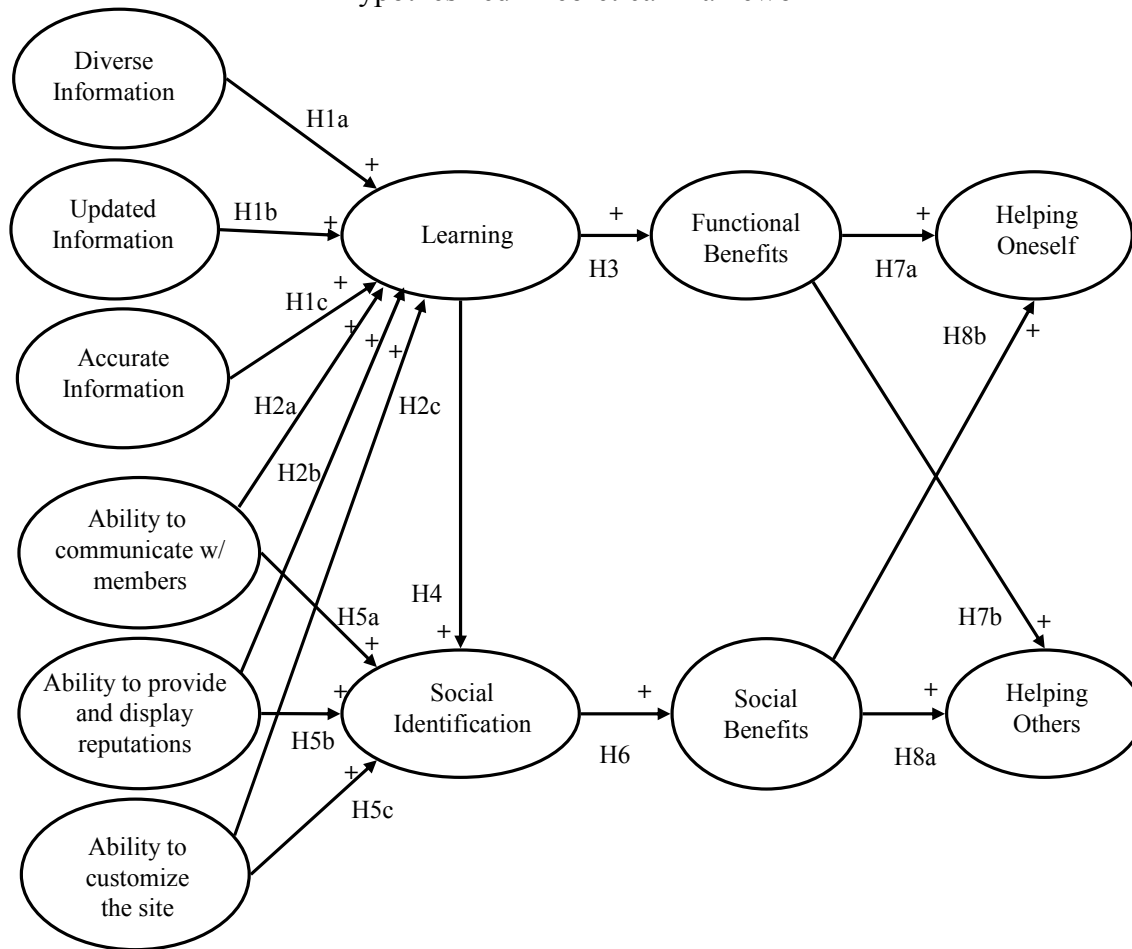|	DI	UI	AI	ACO	AR	ACS	L	SI	FB	SB	HON	HOT
DI	1											
UI	.73	1										
AI	.69	.72	1									
ACO	.45	.46	.43	1								
AR	.41	.42	.44	.54	1							
ACS	.66	.70	.60	.43	.38	1						
L	.62	.63	.58	.50	.43	.63	1					
SI	.21	.26	.25	.39	.20	.33	.35	1				
FB	.70	.72	.72	.52	.51	.74	.81	.38	1			
SB	.31	.31	.31	.47	.27	.41	.43	.69	.46	1		
HON	.52	.51	.45	.41	.36	.53	.62	.29	.60	.33	1	
HOT	.17	.21	.19	.36	.12	.26	.31	.65	.32	.76	.24	1

*All coefficients are significant at $\alpha = .05$ level; <u>Note</u>: All correlations are significantly less than 1.00; DI: Diverse information; UI: Updated information; AI: Accurate information; ACO: Ability to communicate with other members, AR: Ability to provide and display reputations; ACS: Ability to customize the site; L: Learning; SI: Social identification; FB: Functional benefits; SB: Social benefits; HON: Helping oneself; HOT: Helping others.

TABLE 4
Results of the Hypotheses Testing: Standardized Structural Model Coefficients

| Path | Not controlling for common method variance | | Controlling for common method variance | |
	eBay Sample $N = 3,299$	B2B sample $N = 204$	eBay Sample $N = 3,299$	B2B sample $N = 204$
DI → L	.53***	.21**	.51***	.13*
UI → L	.18*	.28***	.13**	.26***
AI → L	.04	.14*	-.03	.17*
ACO → L	.26***	.21**	.19***	.21**
AR → L	-.01	.17*	.00	.14*
ACS → L	.21***	.03	.16***	.06*
ACO → SI	.37***	.21**	.39***	.19**
AR → SI	.11**	.54***	.10**	.50***
ACS → SI	.05	.03	-.01	.04
L → SI	.28***	.26**	.23***	.21**
L → FB	.89***	.66***	.83***	.79***
SI → SB	.78***	.58***	.72***	.55***
FB → HON	.66***	.32***	.23***	.28***
FB → HOT	.28***	.05	.23***	.04
SB → HON	.19**	.04	.11**	.04
SB → HOT	.79***	.23**	.77***	.29***

*p < .05; **p < .01; ***p < .001; <u>Notes</u>: DI: Diverse information; UI: Updated information; AI: Accurate information; ACO: Ability to communicate with other members, AR: Ability to provide and display reputations; ACS: Ability to customize the site; L: Learning; SI: Social identification; FB: Functional benefits; SB: Social benefits; HON: Helping oneself; HOT: Helping others.

FIGURE 1
Hypothesized Theoretical Framework

SUMMARY OF CONSTRUCTS AND THEIR MEASURES
(ENGLISH TRANSLATIONS OF MEASURES)

Diverse Information (Four measures)
- There is a lot of useful information in the eBay forums.
- Participants contribute on many different topics in the eBay forums.
- In the eBay forums, I can explore many different knowledge sources.
- The contributions in the eBay forums are very similar. (reverse-coded)

Updated information (Two measures)
- The eBay forums provide up-to-date information.
- The information in the eBay forums is recent.

Accurate Information (Three measures); adapted from Muylle et al. (2004)
- The information in the eBay forums reflects reality
- The information in the eBay forums is correct.
- I can rely on the information in the eBay forums.

Ability to communicate with other members (Two measures)
- In the eBay forums it is easy to get in contact with other forum members.
- In the eBay forums there are good features which help me to socially interact with other members.

Ability to provide and display reputation (Five measures)
- In the eBay forums the "feedback scores" make it easier to judge the expertise of the other forums members.
- The scores given to answers in the eBay forums facilitate the assessment of the contribution.
- In the eBay forums the "feedback scores" help to visually show how much the forums members are respected.
- In the eBay forums the point award system helps me to express my appreciation of the other forums members.
- The evaluative comments about a member in addition to the scores make it easier to evaluate a contribution.

Ability to customize the site (Two measures)
- The eBay forums customize the answers to specific technical questions.
- The eBay forums provide content tailored to the individual.

Learning (Four measures); adapted from Blazevic and Lievens (2004)
- My learning in the forums proves to be essential for solving future problems.
- My knowledge acquired during the interaction in the eBay forums serves as a critical input for other solutions.
- The information exchange in the eBay forums creates a general expertise that makes the tackling of subsequent problems easier.

- In the eBay forums, I obtain expertise that enhances my know-how for future problems regarding the eBay platform.

Social identification (Two measures); based on Bhattacharya et al. (1995)
- I perceive myself as part of the eBay forum.
- When I talk about the eBay forum, I talk about "us" rather than "them".

Functional benefit perceptions (Four measures)
- The information provided by the eBay forums is valuable.
- The information provided by the eBay forums is useful.
- The eBay forums provide information at an appropriate level of detail
- In the eBay forums, there are good features which help me to accomplish my tasks.

Social benefit perceptions (Four measures)
- The social aspects of the eBay forums are important to me.
- In the eBay forums, I get to know other people who are interested in eBay.
- I enjoy the conversational interactions in the eBay forums.
- I enjoy communicating with other eBay forum members.

Helping oneself (Three measures)
- I use the eBay forums when I want advice on how to carry out some task.
- I go to the eBay forums when I need facts about a particular subject.
- I go to the eBay forums to receive answers to my questions.

Helping others (Four measures)
- I come to the eBay forums to give other participants information I know about a particular subject.
- I participate in the eBay forums to share my skills and abilities with other members.
- I go to the eBay forums to advise other members on how to perform a certain task.
- I spend time to share my knowledge with other forum members.

SUMMARY OF CONSTRUCTS AND THEIR MEASURES
(ORIGINAL GERMAN MEASURES)

Diverse Information (Four measures)
- In den eBay Hilfe-Foren gibt es sehr viele nützliche Informationen..
- In den eBay Hilfe-Foren gibt es Beiträge zu unterschiedlichen Themen.
- In den eBay Hilfe-Foren kann ich verschiedene Experten auskundschaften.
- In den eBay Hilfe-Foren gibt es zu viele ähnliche Beiträge.

Updated information (Two measures)
- Die eBay Hilfe-Foren bieten aktuelle Informationen.
- Die Informationen der eBay Hilfe-Foren entsprechen dem letzten Stand der Dinge.

Accurate Information (Three measures); adapted from Muylle et al. (2004)
- Die Informationen der eBay Hilfe-Foren entsprechen der Wahrheit.
- Die Informationen der eBay Hilfe-Foren sind korrekt.
- Ich kann mich auf die Informationen der eBay Hilfe-Foren verlassen.

Ability to communicate with other members (Two measures)
- In den eBay Hilfe-Foren ist es einfach, mit anderen Mitgliedern Kontakt aufzunehmen.
- In den eBay Hilfe-Foren gibt es gute Features, die mir helfen in sozialen Kontakt mit anderen Mitgliedern zu treten.

Ability to provide and display reputation (Five measures)
- Die eBay Bewertungspunkte in den eBay Hilfe-Foren vereinfachen es, die Erfahrungen der anderen Mitglieder zu beurteilen.
- Die Bewertungen der Antwort vereinfachen es, den Beitrag zu beurteilen.
- Die Bewertungspunkte in den eBay Hilfe-Foren helfen einem zu visualisieren, wie sehr andere Mitglieder respektiert werden.
- Die Bewertungspunkte in den eBay Hilfe-Foren helfen mir, meine Anerkennung gegenüber anderen Mitgliedern auszudrücken.
- Die kommentierten Bewertungen über ein Mitglied vereinfachen es zusätzlich zu den Bewertungspunkten, den Beitrag zu beurteilen.

Ability to customize the site (Two measures)
- In den eBay Hilfe-Foren erhalte ich individualisierte Antworten auf spezifische Fragen.
- Die eBay Hilfe-Foren bieten maßgeschneiderte Inhalte für jeden.

Learning (Four measures); adapted from Blazevic and Lievens (2004)
- Das Wissen, das ich mir in den eBay Hilfe-Foren angeeignet habe, kann ich gut für zukünftige Probleme gebrauchen.
- Das Wissen, das ich mir in den eBay Hilfe-Foren angeeignet habe, ist ein wichtiger Ausgangspunkt für andere Problemlösungen.
- Der Informationsaustausch in den eBay Hilfe-Foren führt zu einem generellen Wissensstand, der es einfacher macht zukünftige Probleme zu lösen.
- In den eBay Hilfe-Foren mache ich Erfahrungen, die mein Wissen für zukünftige Probleme auf der eBay-Plattform verbessern.

Social identification (Two measures); based on Bhattacharya et al. (1995)
- Ich sehe mich als Teil der eBay Foren.
- Wenn ich von den eBay Foren rede, spreche ich von uns statt von denen.

Functional benefit perceptions (Four measures)
- Die eBay Hilfe-Foren liefern wertvolle Informationen.
- Die eBay Hilfe-Foren bieten mir einen einzigartigen Nutzen.
- Die eBay Hilfe-Foren liefern Informationen in einem angemessenen

Detaillierungsgrad.
- Die eBay Hilfe-Foren haben gute Features, die mir helfen meine Aufgaben zu erfüllen.

Social benefit perceptions (Four measures)
- Die sozialen Aspekte der eBay Hilfe-Foren sind wichtig für mich.
- In den eBay Hilfe-Foren lerne ich andere Personen kennen, die sich für eBay interessieren.
- Ich genieße die Konversationen in den eBay Hilfe-Foren.
- Ich genieße es, mit anderen eBay Hilfe-Foren Mitgliedern zu kommunizieren.

Helping oneself (Three measures)
- Ich benutze die eBay Hilfe-Foren, wenn ich einen Ratschlag für eine bestimmte Aufgabe brauche.
- Ich gehe in die eBay Hilfe-Foren, wenn ich Auskünfte über ein bestimmtes Thema benötige.
- Ich gehe in die eBay Hilfe-Foren, um Antworten auf meine Fragen zu erhalten.

Helping others (Four measures)
- Ich komme in die eBay Hilfe-Foren, um anderen Mitgliedern Infos über ein bestimmtes Thema zu geben.
- Ich mache bei den eBay Hilfe-Foren mit, um meine Fähigkeiten und mein Wissen mit anderen Mitgliedern zu teilen.
- Ich gehe in die eBay Hilfe-Foren, um anderen Mitgliedern Ratschläge für eine bestimmte Aufgabe zu geben.
- Ich verbringe Zeit damit, anderen Mitgliedern mein Wissen mitzuteilen.