# Understanding User Participation and Interaction in Online Shopping Communities from the Social and Relational Perspectives

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## Abstract

*The combination of online shopping and social media has contributed to the increase of social shopping activities. Technological advancements allow people with similar interests and experience to share, comment, and discuss about shopping from anywhere and at any time, leading to the emergence of online shopping communities (OSCs). This study reports on lab experiments and focus groups with 24 participants who actively engage in OSCs. We identify how informational support and social support affect user participation and relationships, the impact of social structure on interpersonal relationship formation between community members, and the development of desire to be socially connected with others through real-time conversations. Based on the findings, we discuss a series of design recommendations to facilitate users' emotional exchange and contribution behavior in OSCs, such as enhanced conversational interaction, and collaborative mini-tasks in a social shopping context.*

## 1. Introduction

Social shopping has emerged amid the growing use of online shopping and social media systems [1], involving user-centered online communities that encourage user-generated content and interactions such as reading and writing reviews, rating products, and sharing shopping experiences [2, 3]. As an activity that "naturally lends itself to social interaction" [4], the social foundation of shopping has led to increasing collaborative online shopping activities and formation of online shopping communities (OSCs) [5].

The formation of OSCs is based on recent developments in e-commerce and social media, where users find and interact with others who share similar shopping interests and/or experiences [6]. In this paper, we define "online shopping community (OSC)" as an extension of "*social* shopping community" (online shopping through social media engagement

and interaction [7]). We consider a broad range of online platforms as part of OSCs, including retailer site communities (e.g., Best Buy Community Forum), deal-sharing communities (e.g., Slickdeals), online review forums (e.g., Laptop Mag), and social media shopping groups (e.g., Facebook Groups).

While there are numerous studies on customer participation in online social shopping communities [8], most existing literature studied social shopping from the marketing strategy perspectives, including the impact of customer participation on consumers' decision-making of purchase [9], brand awareness [10], and customer loyalty [11]. Only a few studies have investigated online communities from the social and relational perspectives [4]. For example, from the view of the social responsibility theory, Li & Li [12] advocated social media sites as independent social actors, where consumers can establish social relationship in the context of collaborative shopping activities. Social support theory viewed emotional support and information support as important determinant of user participation in social shopping communities [13]. However, the relationship formation in OSCs still remains underexplored.

This study shifts the focus from the marketing interests of consumer participation in social shopping to the relationship formation among user participation of OSCs. To be more specific, this paper aims to understand whether, how, and why OSCs may facilitate social connection/relationship through user interaction. As more people turn toward online platforms and engage in online communities for product reviews, ratings, sharing, and recommendation [14], it is important to understand this new type of social community from a social relational perspective. Also, since social shopping emerges as a form of "social need" that encourages people to be connected with others [4], a good understanding of user interaction and relationship formation in OSCs may lead to enormous potential for social matching opportunities.

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## 2. Background

### 2.1. Social Shopping

To date, there is no clear definition of *social shopping* or *social commerce* that is widely accepted or consistently used in research [15]. Prior works generally characterize *social shopping/commerce* as the combination of social media and online commercial activities [16], but the use of the concepts in existing literature is associated with many inconsistencies [4].

Some use the terms *social shopping* and *social commerce* interchangeably [17], while others believe the former is a subset of the latter [18], or argue that the terms refer to distinctive user behavior and platforms [19]. Stephen & Toubia [19] regard *social shopping* as a type of online shopping activity connecting consumers who generate content on social media or online shopping platforms, and *social commerce* as the industry utilizing interaction data from buyers and sellers to drive more informed and targeted sales. Yadav et al. [16] describe two elements of *social shopping*: exchange-related activities (information and emotional exchange between users) and computer-mediated social environments (meaningful social interactions exist among users).

In this paper, we extend the concept definition from Stephen & Toubia [19] and Yadev et al. [16], defining *social shopping* as an approach to online shopping based on interpersonal interactions between users on social networks and online shopping platforms, where users' perceptions, attitudes, and shopping intentions are influenced by others through posts, sharing, comments, discussion, and recommendations.

### 2.2. Online Shopping Communities (OSCs)

Online communities can transform online shopping from a solitary activity into a collaborative social activity that provides opportunities for social interaction and relationship development among people with shared interests irrespective of geography and time [20]. However, to facilitate these collaborative social activities, members' participation and contribution are key [21]. Though the focus of many academic studies has been on how customer participation in OSCs affects users' purchase decisions [22], the inherent social nature of social shopping and OSCs entices researchers to derive insights from social-related theories as well. For example, the social support theory characterizes social support for users in online communities from multiple dimensions, such as informational support and emotional support [23]. In the context of OSCs, Liang et al. [13] identify social support to be an important determinant of user participation and contribution, where informational exchange and emotional exchange have positive impact on social and relational intimacy among users and between individual users and the community in general. The emerging OSCs facilitate interactions among users [24], form "community of practice" [25] to provide more interpersonal interactions and shopping experiences [26], and is described as "a great place to connect with other community members who share similar interests ... give support, share information, and connect with fellow members" [27]. This paper extends existing research, to better understand user participation in OSCs from the social and relational perspectives.

- RQ1: How does informational support affect user interaction and relationships in OSCs?

- RQ2: How does emotional support affect user interaction and relationships in OSCs?

### 2.3. Relationship Formation in OSCs

An online community is regarded as a place where individuals with common interests, background, and goals participate and share information by posting questions, providing answers, and engaging in discussions about specific topics [28]. OSCs connects users based on shared shopping interests and experience, which leads to social connections beyond shopping discussions [29]. These online relationships can be as strong and as deep as offline relationships [30].

In the context of shopping communities, offline relational partners are often located in geographically close proximity, which naturally lead to richer face-to-face communications, while most online shopping relational partners never meet face-to-face, and text conversation are most widely used as the major communication method [31]. Also, offline relationships typically require higher levels of transparency of partners' identities, such as age, gender, ethnicity, and social status, whereas online communities allow for much more anonymity in interpersonal interactions [32]. Additionally, the level of social connectedness differs in online and offline relationships. In online settings, one may remain a follower and never reciprocate in a unilateral relationship—which is rare in typical offline relationships, due to social pressure and impression management needs in individuals' social circles [33].

OSCs engage users with similar interests and experience, making shopping a social and collaborative activity. However, less is known about relationship formation through user participation and interaction in these new type of online communities. Therefore, we pose a broad research question to explore

the interpersonal relationship formation among users through interaction on shopping topics:

• R3: Can users develop social relationships through interaction on shopping topics in OSCs? Why or why not?

## 3. Method

### 3.1. Recruitment and Participant Details

We used flyers on a U.S. university campus directing potential participants to an online sign-up form. We pre-screened the responses and only recruited those who self-reported to have posted on online shopping platforms (e.g., product review sites, shopping discussion forums) and/or engaged in shopping groups on social media in the past three months.

A total of 33 people responded to the flyer and 24 were selected to participate in the study. Of these, 14 (58.3%) participants were female. The average age of the participants was 23.2 (SD = 3.58), with a range of 18 to 31. Breakdown of ethnicities was as follows: 7 White/Caucasian, 9 Asian/Pacific Islander, 4 Black/African American, 3 Hispanic/Latino, and 1 Native American. All participants were paid $10 for completing the lab experiment (33-42 minutes) and the follow-up focus group (38-47 minutes).

### 3.2. Experiment Procedure

We used a mixed-methods approach to examine our research questions, conducting six study sessions consisting of four participants each and comprised of two parts: a lab experiment and a focus group. The lab experiment was further split into two mini-tasks: one individual task and one group task. Four out of six sessions had 2 male and 2 female participants, while the remaining two consisted of 3 female and 1 male each.

The mini-tasks consisted of a shopping scenario where we asked participants to *recommend a laptop for an incoming college student for both entertainment and study use*. We selected this scenario as all selected participants had indicated "electronics (e.g., laptop)" as a shopping interests in their sign-up form, and "electronics" is regarded as a shopping category of "high sociability" [34]. For the **individual task**, we asked each participant to *recommend a laptop on their own, based on online forum posts and online product reviews*. For the **group task**, we asked a group or participants to *work together to recommend a laptop based on discussions within a Facebook group*. We assigned each participant a gender-neutral pseudonym (e.g., Alex, Hayden, Jackie) and had them join a Facebook group called "social shopping group" (created by the researchers) for real-time text conversation. We
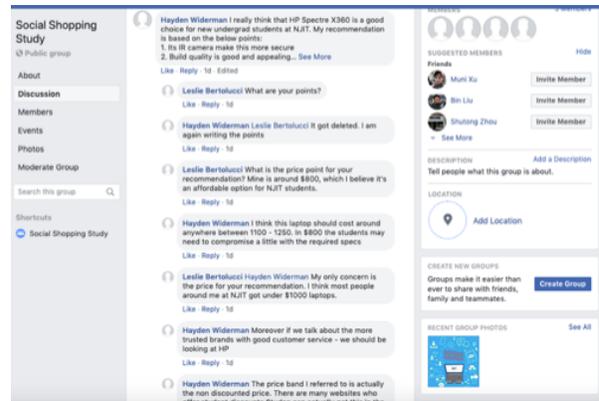


**Figure 1. Sample snapshot of participants' interaction on the shopping topic in the group task.**

let the discussion continue until all group members came to a consensus. At the end of each task, each participant filled out a questionnaire to evaluate their perceived connection with online review providers/forum users (individual task) and shopping partners (group task). We altered the order of individual and group task after each study session to minimize any possible ordering effects [35]. During the course of the lab experiments, all participants were separated to avoid any verbal and non-verbal interactions, and only communicated through computer-mediated text conversation.

After the lab experiments, we held focus groups, aimed to learn about the participants' thoughts of the mini-tasks, compare the tasks with their past social shopping experience, and talk about the experience of engaging in OSCs in their daily life.

The study setup was designed for two main purposes. First, the mini-tasks were to mirror the two typical participation types and social structure in OSCs: *unilateral*, where most users stay as followers, receiving information from the platform; and *reciprocal*, where users exchange text messages with others, receiving information and contributing knowledge to the community. Second, the mini-tasks intended to help participants better understand what we meant by "social shopping" and "OSC" (before our focus group) by giving them firsthand experience with related tasks.

### 3.3. Questionnaire Measures

We adapted Kaptein et al.'s survey scales [36] to measure participants' perceived connection to others within social shopping (explained further below). We operationalized *social relationship formation* as to whether they "would like to keep [task partners] as contact(s)" for future shopping interaction(s).

Each participant received the questionnaire immediately after they finished their individual task and group task, respectively. For each individual task, we asked the participants to note the username of "the most helpful online forum/review user," and for each group task, the evaluation was based on "the most helpful shopping partner in the group."

After the *individual task*: for evaluation of "the online forum/review user" the first scale was a 5-item, 7-point Social Connectedness Scale (Cronbach's alpha=0.87) [37] (from 1-Totally disagree to 7-totally disagree). It consisted of items addressing the feelings of closeness and shared thoughts between the participant and the chosen online user (e.g., "I often know what s/he feels" and "I feel that s/he often knows what I think.").

Next was the Inclusion of the Other in the Self (IOS) Scale. This measures perceived intimacy [38] using a 2-item, 7-point pictorial scale. The first item shows two circles labeled "Self" and "Other", and the second item shows "Self" and "Community" (where "community" is defined as "the most impressive shopping forums/review sites you used in the task"). For picture, the circles increasingly overlap, from non-touching to almost fully overlapping. Participants chose the pictures that most closely represented their relationship with another user, and their preferred platform.

Finally, participants rated how much they agreed with the statement "I would like to keep him/her as my contact on the platform" on a 7-point scale (from 1-Totally disagree, to 7-Totally agree).

After the *group task*: the evaluation was the same as the individual tasks, with two exceptions. In the IOS Scale, we defined "community" as "the shopping group." Also, for where we measured the relationship formation, we added a statement, "I would like to keep the shopping group as my contact on the platform" on a 7-point Social Connectedness Scale (from 1-Totally disagree to 7-totally) with a Cronbach's alpha=0.85.

### 3.4. Focus Group Data Collection & Analysis

All focus groups were audio-recorded and transcribed. The protocol started with questions about the thoughts of the tasks in the study and how they compare the two types of user participation and interaction. Then we asked the participants about their social shopping experience, motivations, behavior, expectations, and challenges on online platforms. Questions asking about their experience were: "Why do you participate in the shopping group/community?" and "How do you evaluate your relationship with other members?." Other questions asked more generally about their interactions with others on shopping topics.

| Measure | M$_{individual}$ (SD) | M$_{group}$ (SD) | Diff. (SD) | T(23) | p |
|---|---|---|---|---|---|
| **Connectedness** | 2.60 (0.48) | 4.81 (0.41) | -2.20 (0.58) | -18.55 | <.01 |
| **Intimacy** | 2.45 (0.57) | 4.54 (0.74) | -2.08 (0.72) | -14.23 | <.01 |
| **Keep Contact** | 2.25 (1.07) | 2.02 (0.52) | -2.77 (0.86) | -15.79 | <.01 |

**Table 1. Comparison of participants' perceived connections from individual and group task conditions.**

As exploratory work, this paper used a Grounded Theory approach for qualitative analysis of the focus group data. We went through an iterative independent coding process to allow themes to emerge naturally from the data. We then generalized theories from the themes. We used open-coding and arranged the codes in groups and hierarchies to determine emergent themes. High-level codes included *experience, motivations, evaluation*, as well as emotional codes such as *support, relationship, connectedness*.

## 4. Findings

After normality tests of our data, we ran a paired-sampled t-test to compare the three attitudinal measures in individual and group task conditions. Table 1 presents the mean scores of each variable and the outcomes of the overall results. There was a significant difference in each of the three variables: connectedness, intimacy, and willingness to keep the connection/contact. For each of the three measures, participants rated higher for the perceived connection with the shopping partners (group task) than that with the online forum/review users (individual task). The results suggest that when engaging in text conversations within a shopping group, our participants were more likely to indicate that they wanted to keep these shopping partners/group for future interactions, rather than having it be a one-time-benefit type of interaction.

The lab experiment examined the effects of two types of user participation of social shopping on participants' evaluation of their relationships with others and the community. The experimental manipulation tested two conditions and found that participants, when engaged in text conversation within an online shopping group, evaluated their partners and the community more positively, than users on online forum and review sites used only for informational purposes. Compared with unilaterally retrieving information from online platforms, participants that engaged in real-time text conversation within the computer-mediated online group felt more connected to their partner, felt more intimate, and were more likely to keep their partner and the group as contacts for future interactions.

Our statistical analysis showed exciting potential of relationship formation in social shopping groups;

however, there is more to be discovered about why and how such connection or relationship may be developed in various scenarios, and what other factors may also affect user participation and relationship formation in OSCs. To further explore the underlying rational and factors, a qualitative approach is needed for a comprehensive understanding of this topic.

Next, we present representative quotes collected from our participants from our six focus groups, with pseudonyms used to protect their privacy. As this study aims to understand user participation and interaction in OSCs from social and relational perspectives, we focus on the interpersonal relationships between the users, rather than the seller-buyer relationship typically seen in most existing market research.

## 4.1. Joining and/or Quitting an OSC

Since all participants claimed to be an active member of online shopping platforms (e.g., review sites, forum, social shopping group), we asked about how they joined that group, as well as when and why they perceived themselves as a part of the community. While there are different motivations, "opportunism" was the dominant reason of joining OSCs. In fact, most people expected to "grab [the information] and go" in the first place. As Jack said, "I was trying to buy a new lens for a trip to France, so I looked at all the reviews on the [camera] forum, and that's when I created an account on the forum because you need an account to read the posts". Linda echoed this sating, "I consider myself a part of the Slickdeals community. At first, I went there just to check the deals, and I had never considered writing anything for several months, until once I engaged in a conversation about a Nest camera deal. After that, I feel I'm a part of it [the community]." Interestingly, another way to create and join an OSC was the formation of a subgroup from a larger community, due to the desire for more active participation from the members. For example, Ashley mentioned how she joined a shopping group on WhatsApp, "We were all from a jewelry group on Facebook, of about 30-40 people, but when we realized that it's always a few of us being active, we decided to create a new group with just a few of us... It's always awkward to kick someone out."

Many participants have experience of quitting OSCs, especially when they feel emotionally detached with other members in the community. "You don't necessarily get new information every day, but when you feel you have less to share and talk about then other people there, you know it's time to leave," Frank told us. Due to the relatively loose social structure in online settings, most "quits" happened in a silent

way. "You never really need to tell them you decided to quit. All you have to do is to remain inactive for a while, and everybody knew you're leaving," Angel said. Echoing Angel's statement, James said, "Yeah, for sure, I never say goodbye to people online, nobody does that." In contrast, there are also active quits, typically when someone has earned some status in the community. As Ivan said, "I quit [an online camera forum] because it's too much work. I've got to focus on my studies... I know some people are following my posts on the forum, and I have to let them know I will not be contributing anymore." People also tend to say goodbye explicitly when the online communities are relatively small, and the relationships among the members are close. As Anne told us, "There were only 9 of us in our [fashion] group, and people kind of know each other. I told them I have to quit' when I got pregnant, as we are kind of friends in a way, so I guess I need[ed] to tell them I'm moving on to something else."

## 4.2. Participation and Interaction in OSCs

There are various participation types and roles that users play in OSCs. We focused on understanding the user behavior in OSCs from the social and relational perspectives. Our focus group questions aimed to identify the factors that motivates users to participate, interact, and stay active in the communities. Three main themes emerged as information exchange, community social status, and emotional support.

**4.2.1. Information Exchange** Seeking information was a major theme among the participants when engaging and participating in OSCs, especially during the early stage of their membership. It was very common for people to report that they were just looking for useful product information for a period of time when they first joined the communities. "Basically nothing for the first two months. I was there trying to get what's trending [handbags] right now. They share pictures of the celebrities and themselves, and all I did was 'like' them," Natalia said, when asked about the first time she had posted anything on a Facebook handbag group.

While it is not surprising to learn "opportunism" was a major motivation for participation in early-stage users, many participants came to contribute somehow when they realized they wanted to stay with the community for a longer time. Some felt they had the moral responsibility to reciprocate for the benefit they received from others and the community. For example, Linda said, "Other people are talking about a lot of interesting things and I think I got really useful information from

them. So, I guess I have to do something, like sharing the deals I learned from somewhere else, and telling other people about something I have used, either good or bad." Others felt sharing information is essential for the success of the entire community, as Jack said, "It's the key of our forum. If we just take it and go, but never give back, the forum is going to be dead pretty soon...we are here to help each other." Some shopping groups/communities even explicitly made "kick-out" rules for members based on their "activeness." For instance, "In our (Facebook) group, you get like [a] one-month grace period. After that, you need to make comments or new posts at least every couple of days. Otherwise, you get kicked out," Elizabeth said.

**4.2.2. Community Social Status** Another major motivation of user participation and contribution emerged among the participants was the pursuit of social status within OSCs. Similar to other virtual communities, social status is typically earned in OSCs by (1) badge or star systems, where users accumulate through their activities in the communities, and (2) reputation, where users were well recognized and appreciated by other members of the communities.

Some users enjoyed interacting with other users and contributing to the community, partly because of the social status incentive. "With the badges, everybody looks up to you, which makes you feel good," explained Zach, an online electronics forum user; "You get points for logging on, making comments, sharing links, and 'likes' of your posts from others. I'm not saying I'm doing all the stuff for this, but definitely it's a bonus for what I've done." Jack echoed this saying, "We don't get any points or badges, but everyone in the community knows my ID, as I've been active there for quite a long time. When I say something, people believe what I say, and I like the feeling of being influential."

**4.2.3. Emotional Support** Different from early-stage users, conversations between long-time community members often go beyond exchanging information. In fact, many participants talked about the importance of the emotional attachment to the community. For example, Henry spent significant amounts of time providing information to both friends and strangers: "I feel happy helping others and being thanked by them. It's a big investment [to purchase a laptop], and you always want to [them to] make the right decision... I do this in my life as well. To be honest, I don't know how to say no' to them (laugh)." Some also talked about indirect emotional support.

For example, Marilyn said, "It's more than just talking about shopping for clothes, handbags or shoes. It's about a lifestyle that all of us sort of admire ... I think it's like a big family. You feel comfortable talking to them, because you know they are always supportive." Tim added, "My mom never understands why I spend so much time and money on this stuff, and called it totally useless. So when I talk to other people on the forum, I feel so relieved." In fact, many participants discussed the emotional sense of belonging to the community as a prominent reason to stay active in the community, and nearly all participants mentioned that they have given to or received emotional support from others within OSCs.

**4.3. User Relationships within the Community**

Our R3 focused on relationship formation in OSCs. While the results of the lab experiments showed that people were more likely to indicate wanting to keep the connection with others when they engaged in real-time text conversation with others, the underlying factors that affect user perception of the relationships formation with shopping partners, however, still remain unknown. To address this, the focus groups examined how users perceive and evaluate their relationships with others in OSCs through daily interaction on shopping topics.

We repeatedly heard participants describe their relationships with someone in OSCs as "subfriendship"—more than an acquaintance, but less than a friend. "I can't really say we are friends. We share similar interests, have interesting conversations...when I need some suggestions on clothes or bags, she's always the first one to put comments." Jennifer said, when asked to describe her relationship with someone she had the most interactions within a community, "but I don't know nothing about her, like how she looks, where she lives. But since we often talk to each other on Facebook [Groups], I feel she's someone that I can trust."

Participants also described the positive effect of emotional support (in addition to information exchange) from other online users. Marilyn talked about a member in her Facebook fashion group, "Most of the time we discuss clothes, shoes, or other stuff, but sometimes we talk about life, marriage, and work. I think it's getting something meaningful." Though the connections are perceived to be weak, most participants had someone in the community that they could talk to beyond shopping-related activities. For example, Angel said, "We know each other by talking about phones and computers, but occasionally we also discuss things like sports or movies."

As mentioned earlier, there are two major social structure forms in online communities: unilateral and

reciprocal. Unilateral social structure is typically formed and facilitated in most forums and review sites, while reciprocal structure is more common in shopping groups on social media sites. In a unilateral social structure, more people participate as followers, where only a few central users contribute on a regular basis. In these cases, it is difficult for interpersonal relationships to develop within the communities. As James said, "I would say our interaction is very limited, as only a few people are actually posting things... you can never build anything with someone who never shows up."

In comparison, in a reciprocal community, connections between users are more likely to emerge. Users get to know each other through conversational interactions, where timely responses are expected from fellow users. As Elizabeth told us, "In our [Facebook] group, everyone participates and respond to others very quickly, and that's why we get along with each other...if you're just reading product reviews on a website, or never get a response, you don't have that feeling, of human, you know?" Ivan also acknowledged the importance of the conversational interaction(s), "You want to be connected with real people, you want discussions, otherwise you don't need a community." In general, we found that "human contact" was appreciated in the evaluation of interactions with others, while people have much lower evaluations of their relationship with others when using a community as an "information bulletin." When asked to compare the two tasks in the lab experiments and recall their real-world experience of participating in various platforms and communities, Jack said, "I went there [Amazon.com] just to look at the reviews. I spent quite a long time there, but I didn't even pay attention to who posted it...I think interaction is really important. When you have conversations, you are somehow more connected."

## 5. Discussion

The emergence of social shopping has facilitated interaction between strangers based on similar shopping interests and experience, which leads to the formation of relatively new types of online communities. While most studies on social shopping have focused on factors that influence purchasing behaviors, our study aims to examine OSCs from the relational perspectives. The results are supportive of the emergence of potential online social connections among users in OSCs.

### 5.1. Informational and Emotional Support in User Participation and Relationship

Informational support and emotional support have been characterized in social support theory as the major supportive factors for user participation, interaction, and behavior in traditional online communities [23]. Extending this theoretical framework, our R1 and R2 inquired into how they affected user interaction in a social shopping context, as well as their participation and interpersonal relationships in emerging OSCs. The reason that social support is essential in OSCs is because supportive interactions among members let users feel closer to one-another and more comfortable in exchanging information [13]. An interesting finding was the differences in the roles that these two types of support played in the process. The results suggested that most people joined and started to participate in the OSCs mainly for informational purposes. However, emotional support played a more important role in keeping members active and making contributions to the community over a longer period of time.

Users who only experience informational support are less likely to develop psychological belongingness to the community. In fact, they felt less of a part of the community, resulting in low desire to contribute to the community and connect with other members. On the other hand, many participants, as active members of their individual online shopping groups/communities, reported the psychological sense of emotional support developed through interaction with others, either on or beyond shopping topics, positively affecting their participation and relationship with others.

In addition, we also discovered that the two types of social support vary based on the social structure within the community. In social media-based OSCs, where reciprocal structure is more common among a relatively small number of members, the interactions are more conversational and often go beyond shopping to other aspects of life. As a result, emotional support is more likely to be facilitated in these "small and close" communities. However, in most retailer sites or forum-based communities, there are usually more strict rules set about what is allowed to be shared and discussed. Therefore, unilateral social structures are more typical on these platforms, where only a few central users contribute regularly and most basic users stay as followers. With less opportunities for conversational and supportive interaction between average users, information support becomes sole and dominant motivation for the majority of OSC members.

### 5.2. Relationship Formation in OSCs

Our RQ3 explored relationship formation through various types of interactions in OSCs. Our results from the lab experiments showed that participants who engaged in conversational interactions with others in

the study were willing to keep connections with their shopping partner and the group ($M = 5.02, SD = 0.52$). In contrast, those who participated in the information-seeking task with minimal interactions with others showed significantly lower willingness to keep connected with others ($M = 2.25, SD = 1.07$).

One possible explanation for our experimental results would be that users preferred "human contact," when evaluating their interaction and relationship with others. As much as information-seeking was a fundamental motivation in user participation, the way users received and shared information greatly impacted the formation of interpersonal relationships. There was a noted difference between when the information was exchanged through conversational interaction among members versus through centralized dissemination within the communities. In conversational interactions, users were engaged with others in a certain period of time, a typical communication pattern that people usually experience in offline settings [39]. During the focus groups, many participants regarded real-time text conversation as a type of computer-mediated interaction with other "human contacts." In comparison, users perceived more of a relationship between human and "system," when using online reviews to inform shopping activities. As a result, users typically paid more attention to the information itself rather than the user(s) who generated it, which negatively affected the potential formation of interpersonal social connections.

Another possible explanation would be the social structures types and relationship formation in OSCs. As noted in prior works, online relationship form and end quickly in unilateral structure [40], whereby reciprocated online interactions have a strong effect on users' psychological commitment in online communities [41]. This may have also been true in the context of OSCs, where users in a unilateral social structure who typically received information from the platforms' central users, combined with their low participation desire, may have had less desire to develop interpersonal relationships with others. In reciprocal OSCs, the decentralized hierarchical social structure, combined with high commitment to the community and willingness to contribute, may have increased desire to form interpersonal relationships.

## 6. Technological Implications

As discussed in the previous section, we identified the different roles that the information support and emotional support played in user participation and interaction by using the theoretical framework of social support theory. We also examined whether and why

social relationships may emerge within the OSCs, and how the relationship formation varied in unilateral and reciprocal structures. Based on the findings, we propose the following design recommendations to encourage participation, facilitate relationship formation, and improve user experience in OSCs.

The motivation to becoming a OSC member is often tied with informational need(s). Users join OSCs mainly for the demands of information and knowledge to inform their own shopping decisions, but they stay active and contribute to the community only when they feel connected with others. Therefore, one major challenge, is how to increase users' emotionally connectedness with others and belongingness to the communities. Though there are many interface or system solutions to the challenge, one viable feature could be real-time text "conversations" in an OSC.

There might be several reasons why "conversation" is preferred by experienced and active OSC members and have positive impacts on perceived connectedness with others. First, similar to offline relationship formation processes, one may discover and evaluate personalities and interests of the relational others in online communities. Typical comments or reviews on shopping sites may limit the interaction on the product itself such as specs and price, however, real-time conversations between users would allow the interaction to extend to other areas. For example, discussions on a camera or lens might lead to the discovery of other common interests, such as photography and traveling. Second, users experienced the feeling of emotional support, either helping others or being helped, during the course of informational and emotional exchange in those real-time conversations. As we learned during the focus groups, such emotional support played a more important role than informational support in keeping users active and contributing to the communities. Third, "conversation" between average users helps with building a reciprocated and decentralize social structure within the communities, a supportive climate for interpersonal relationships to foster and develop.

If conversation between users can prompt emotional connectedness and belongingness to OSCs, how could it be supplemented to existing online platforms? Currently, many OSCs adopt reputation or badge systems to encourage user participation, where users get points or stars for completed actions such as logging in, leaving comments, answering questions, and sharing information. Based on our findings, we propose that "collaborative mini shopping tasks," such as the one we described in the study—helping one to pick a laptop for college—could be added to OSCs as a supplement to reputation/badge systems.

There are several possible benefits associated with this implementation. First, collaborative mini-tasks could create opportunities for real-time interpersonal conversations between users who would otherwise have difficulties initiating conversations with strangers. In this case, the social awkwardness of interaction initiation could be overcome by technology-assisted teaming-up process. Second, since joining small teams promotes one's contribution behavior in online communities [42], we also expect the collaborative mini-tasks would increase the *willingness to contribute* and *helping behavior* for community members. As we found in our study, reciprocal social interaction has positive impact on users' emotional perception of connectedness with others and belongingness to the community. Third, this implementation would allow users to engage in small groups, have real-time interaction, and collaboratively complete a task with other active members. Through the collaborative tasks, users may develop desire to keep contact with or even "friend" specific partners for future interactions, as exemplified and supported by our lab experiment results.

## 7. Limitations

This study has limitations which warrant further examination. First, students from the same university participated in our study. Their views, attitudes, behaviors might not be representative of other groups. Future studies will recruit a wider, more diverse sample. Second, we used "electronics" (and specifically, "laptop") in our activities. Future research could explore how different products or categories may impact user participation and relationships in a social shopping context. It would also be interesting to compare the differences between different types of OSCs and the effect of various product categories on users' participation and perception of shopping interaction with others. Third, we are aware of self-selection and self-report bias in this study. We pre-screened participants, and though we wanted them to be active social shoppers and OSC members, the recruitment largely depended on the accuracy and honesty of the self-reported data. Moreover, though this study demonstrated the benefits of reciprocal, more socially-connected OSCs, we acknowledge that it may not be feasible to build such communities in all scenarios and there might be new challenges to user interactions and behaviors as OSCs develop. Our future work will specifically focus on the user interaction and socialization in different types of OSCs, and examine how these user-generated communities may bring value to online retailers and social network platforms.

## 8. Conclusion

The emergence of social shopping creates opportunities for social shoppers with similar interests to communicate and interact. We investigated user participation and relationships in this new type of online communities, finding that user interaction with others and contribution to the community are strongly tied with the social support they have experienced, social structure (whether unilateral or reciprocal), perceived connectedness, and belongingness to the communities.

This study also explored relationship formation, finding that users may develop desire to be socially connected with others through real-time context conversations on shopping topics. Moreover, we found that reciprocated, emotionally supportive environments positively impact users' participation, contribution, and relationship formation within the communities. Based on the findings, we discussed a series of technological implications to facilitate emotional support and interpersonal interaction, such as collaborative mini-shopping tasks supplemented to encourage user conversations and contribution behavior.

We hope that these findings provide insights into the underlying psychology of user behavior and relationship formation in the context of social shopping and help inform better design practices that accommodate the social characteristics of OSCs.

## References

[1] R. G. Curty and P. Zhang, "Social commerce: Looking back and forward," *Proceedings of the American Society for Information Science and Technology*, vol. 48, no. 1, pp. 1–10, 2011.

[2] N. Hajli, "Social commerce constructs and consumer's intention to buy," *International Journal of Information Management*, vol. 35, no. 2, pp. 183–191, 2015.

[3] Y. Kim and J. Srivastava, "Impact of social influence in e-commerce decision making," in *Proceedings of the ninth international conference on Electronic commerce*, pp. 293–302, ACM, 2007.

[4] K. Z. Zhang and M. Benyoucef, "Consumer behavior in social commerce: A literature review," *Decision Support Systems*, vol. 86, pp. 95–108, 2016.

[5] S. Ray, S. S. Kim, and J. G. Morris, "The central role of engagement in online communities," *Information Systems Research*, vol. 25, no. 3, pp. 528–546, 2014.

[6] R. Davis, I. Piven, and M. Breazeale, "Conceptualizing the brand in social media community: The five sources model," *Journal of retailing and consumer services*, vol. 21, no. 4, pp. 468–481, 2014.

[7] R. Olbrich and C. Holsing, "Modeling consumer purchasing behavior in social shopping communities with clickstream data," *International Journal of Electronic Commerce*, vol. 16, no. 2, pp. 15–40, 2011.

[8] Y. Lu, L. Zhao, and B. Wang, "From virtual community members to c2c e-commerce buyers: Trust

in virtual communities and its effect on consumers purchase intention," *Electronic Commerce Research and Applications*, vol. 9, no. 4, pp. 346–360, 2010.

[9] E. Akar and B. Topçu, "An examination of the factors influencing consumers' attitudes toward social media marketing," *J. of Internet Commerce*, vol. 10, no. 1, 2011.

[10] D. C. Edelman, "Branding in the digital age," *Harvard business review*, vol. 88, no. 12, pp. 62–69, 2010.

[11] K. Goodrich and M. De Mooij, "How socialare social media? a cross-cultural comparison of online and offline purchase decision influences," *Journal of Marketing Communications*, vol. 20, no. 1-2, pp. 103–116, 2014.

[12] Z. Li and C. Li, "Twitter as a social actor: How consumers evaluate brands differently on twitter based on relationship norms," *Computers in Human Behavior*, vol. 39, pp. 187–196, 2014.

[13] T.-P. Liang, Y.-T. Ho, Y.-W. Li, and E. Turban, "What drives social commerce: The role of social support and relationship quality," *International Journal of Electronic Commerce*, vol. 16, no. 2, pp. 69–90, 2011.

[14] K. Morrison, "Social commerce could become a \$15 billion business by 2015," in *Infographic*, 2014.

[15] C. Baethge, J. Klier, and M. Klier, "Social commerce state-of-the-art and future research directions," *Electronic Markets*, vol. 26, no. 3, 2016.

[16] M. Yadav, K. De Valck, T. Hennig-Thurau, D. Hoffman, and M. Spann, "Social commerce: a contingency framework for assessing marketing potential," *J. of Interactive Marketing*, vol. 27, no. 4, 2013.

[17] C. Wang and P. Zhang, "The evolution of social commerce: The people, management, technology, and information dimensions.," *CAIS*, vol. 31, no. 5, 2012.

[18] R. G. Curty and P. Zhang, "Website features that gave rise to social commerce: a historical analysis," *Electronic commerce research and applications*, vol. 12, no. 4, pp. 260–279, 2013.

[19] A. T. Stephen and O. Toubia, "Deriving value from social commerce networks," *Journal of marketing research*, vol. 47, no. 2, pp. 215–228, 2010.

[20] J. Wei, S. Seedorf, P. B. Lowry, C. Thum, and T. Schulze, "How increased social presence through co-browsing influences user engagement in collaborative online shopping," *Electronic Commerce Research and Applications*, vol. 24, pp. 84–99, 2017.

[21] S. Wattal, P. Racherla, and M. Mandviwalla, "Network externalities and technology use: a quantitative analysis of intraorganizational blogs," *Journal of Management Information Systems*, vol. 27, no. 1, pp. 145–174, 2010.

[22] C. M. Cheung, B. S. Xiao, and I. L. Liu, "Do actions speak louder than voices? the signaling role of social information cues in influencing consumer purchase decisions," *Decision Support Systems*, vol. 65, pp. 50–58, 2014.

[23] M. N. Hajli, "The role of social support on relationship quality and social commerce," *Technological Forecasting and Social Change*, vol. 87, 2014.

[24] C. Grange and I. Benbasat, "The value of social shopping networks for product search and the moderating role of network scope," 2013.

[25] E. Wenger, "Communities of practice: A brief introduction," 2011.

[26] U. M. Dholakia and S. Vianello, "Effective brand community management: Lessons from customer enthusiasts," *Available at SSRN 1512090*, 2009.

[27] eBay, "Special interest groups," *accessed May 2019*, 2015.

[28] H.-L. Yang and C.-Y. Lai, "Understanding knowledge-sharing behaviour in wikipedia," *Behaviour & Information Technology*, vol. 30, no. 1, 2011.

[29] P. Manchanda, G. Packard, and A. Pattabhiramaiah, "Social dollars: The economic impact of customer participation in a firm-sponsored online customer community," *Marketing Science*, vol. 34, no. 3, pp. 367–387, 2015.

[30] D. Chan and G. Cheng, "A comparison of offline and online friendship qualities at different stages of relationship development," *Journal of Social and Personal Relationships*, vol. 21, no. 3, 2004.

[31] R. L. Benedicktus, M. K. Brady, P. R. Darke, and C. M. Voorhees, "Conveying trustworthiness to online consumers: reactions to consensus, physical store presence, brand familiarity, and generalized suspicion," *Journal of Retailing*, vol. 86, no. 4, pp. 322–335, 2010.

[32] I. V. Kozlenkova, R. W. Palmatier, E. Fang, B. Xiao, and M. Huang, "Online relationship formation," *Journal of Marketing*, vol. 81, no. 3, pp. 21–40, 2017.

[33] M. Trier and A. Richter, "The deep structure of organizational online networking–an actor-oriented case study," *Information Systems Journal*, vol. 25, no. 5, pp. 465–488, 2015.

[34] Y. Xu and M. J. Lee, "Shopping as a social activity: Understanding people's categorical item sharing preferences on social networks.," in *IUI Workshops*, 2018.

[35] G. S. Sanders and R. S. Baron, "The motivating effects of distraction on task performance.," *Journal of Personality and Social Psychology*, vol. 32, no. 6, p. 956, 1975.

[36] M. Kaptein, D. Castaneda, N. Fernandez, and C. Nass, "Extending the similarity-attraction effect: The effects of when-similarity in computer-mediated communication," *Journal of Computer-Mediated Communication*, vol. 19, no. 3, pp. 342–357, 2014.

[37] D. T. van Bel, K. Smolders, W. IJsselsteijn, *et al.*, "Social connectedness: concept and measurement.," *Intelligent Environments*, vol. 2, pp. 67–74, 2009.

[38] A. Aron, E. N. Aron, and D. Smollan, "Inclusion of other in the self scale and the structure of interpersonal closeness.," *Journal of personality and social psychology*, vol. 63, no. 4, p. 596, 1992.

[39] I. Liu, C. Cheung, and M. Lee, "Customer information sharing behavior in social shopping communities: A social capital perspective.," in *PACIS*, p. 227, 2013.

[40] E. M. Rovie, "The anonymity of the internet: A problem for e-commerce and a modified hobbesian solution," in *Ethical Issues in E-Business: Models and Frameworks*, pp. 28–39, IGI Global, 2010.

[41] C. Nass and C. Yen, *The man who lied to his laptop: What we can learn about ourselves from our machines*. Penguin, 2010.

[42] W. Ai, R. Chen, Y. Chen, Q. Mei, and W. Phillips, "Recommending teams promotes prosocial lending in online microfinance," *Proceedings of the National Academy of Sciences*, vol. 113, no. 52, 2016.