Received 3 January 2015
Revised 9 April 2015
Accepted 4 May 2015

Sellers versus buyers: differences in user information sharing on social commerce sites

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Abstract

Purpose – Social commerce sites offer fertile ground for users to communicate product information. Given that such sites have the potential to transform the way of doing business, it is clearly important for academics to understand user information sharing on social commerce sites. Existing research has considered motivations as core elements of user information sharing in online communities. The purpose of this paper is to advance the theoretical understanding of user information sharing by investigating differences in motivations between the different user types of social commerce sites: sellers and buyers, and the impact on social commerce.

Design/methodology/approach – The authors conducted an empirical study by analyzing data from a social commerce site in China, including panel data ($n = 892$) and survey data ($n = 913$).

Findings – This research showed that user type (i.e. sellers and buyers) plays an important moderating role in user information sharing: sellers exert a positive moderating effect on utilitarian and social motivations, while buyers are found to have a positive moderating effect on hedonic motivation.

Research limitations/implications – This study contributes to existing literature, not only by exploring the antecedents of user information sharing on social commerce sites from utilitarian, hedonic and social dimensions, but also by providing an evaluation of user types (i.e. sellers and buyers). The authors believe that the results of this study offer important and interesting insights for IS research and practice.

Practical implications – This study will enhance social commerce site managers' understanding of better features for information sharing and differences in motivation between sellers and buyers. This could improve the effectiveness of encouraging strategies and help social commerce sites be more sustainable in the highly competitive contemporary environment.

Originality/value – Based on social exchange theory and motivation theory, this paper takes user types into account, and postulate that user type (i.e. sellers and buyers) plays a moderating role in the relationships between motivations (i.e. utilitarian, hedonic and social motivation) and user information sharing intention on social commerce sites.

Keywords Social networking (e.g. Facebook, second life), E-commerce (B2B/B2C/B2G/G2C), Virtual community, Information sharing, Social capital theory

Paper type Research paper

Information Technology & People
Vol. 29 No. 2, 2016
pp. 444-470

0959-3845
DOI 10.1108/ITP-01-2015-0002

This work was partially supported by grants from the City University of Hong Kong (Project No. 7004289) and (Project No. 7004124).

1. Introduction

The emergence of social commerce sites has facilitated the sharing and exchanging of product information by individuals. Social commerce allows various commercial activities to be conducted on social media, capitalizing on online social capital (Liang *et al.*, 2011). Social media sites encourage individuals to visit downstream links to online shopping websites (e.g. Taobao.com). The Hitwise data released in April 2012 indicated that over 17 percent of downstream visits to Taobao.com originated from Meilishuo.com and Mogujie.com. More and more sellers realize the commercial value of social commerce sites, and are starting to share their stores and products with social commerce sites (Olbrich and Holsing, 2011). Given that such sites have the potential to transform the way business is conducted online, it is evidently important for academics to understand user participation on social commerce sites from both social and commercial perspectives.

Liang and Turban (2011) define social commerce as "the delivery of e-commerce activities and transactions via the social media environment, mostly in social networks and by using Web 2.0 software [p. 6]" in their introduction to the issues particular to social commerce. Specifically, two configurations of social commerce websites are considered: social networking websites adding commercial features (i.e. Facebook) and traditional e-commerce websites adding social networking abilities (i.e. Amazon.com). The sustainability of online communities depends on users' information sharing (Liang *et al.*, 2011), as in learning environments (Liu *et al.*, 2013).

Previous studies primarily investigated the key factors leading to user information sharing (Hara and Hew, 2007; Tedjamulia *et al.*, 2005; Bock *et al.*, 2005). Most prior research conducted empirical studies from the social perspective, by identifying relevant social and environment factors (Chai *et al.*, 2011). However, social commerce not only includes social factors, but also commercial factors. That is, social commerce provides a platform for both social interactions and commercial exchanges. This commercial attribute attracts the participation not only of buyers or customers, but also of sellers, resulting in two types of users – sellers and buyers. Specifically, we should consider the participation of both sellers and buyers in the context of social commerce, which is different from the traditional virtual communities. Accordingly, we take user types into account in this paper.

Moreover, prior studies investigating the antecedents of information sharing and their effects have sometimes produced inconsistent results. For example, reciprocity and self-efficacy, which are well-known antecedents of information sharing, do not show a significant effect on online consumer-opinion platforms (Cheung and Lee, 2012). Besides, reward, which is also an important predictor of information sharing, does not show a significant effect on knowledge sharing on web-based discussion board (Lee *et al.*, 2006). The problem of inconsistent results has created a new research gap. One possible reason for this phenomenon may be the lack of understanding of the processes at work on social commerce sites. The process of accessibility of resources may be associated with contingent factors, particularly that pertaining to characteristics of the information contributors. These contingent effects better define the boundary conditions under which IS theory is applicable, and enhance our understanding of the issue under consideration. The research gap triggers two research questions:

RQ1. Which contingent factors are involved?

RQ2. How do these factors moderate the relationships between motivation and information sharing?

To address the gaps in the literature, in this study we attempt to advance the theoretical understanding of user information sharing by exploring the different motivations (i.e. utilitarian motivations, hedonic motivations or social motivations) of different types of users (i.e. sellers and buyers). Sellers and buyers have different goals when participating on social commerce sites. Specifically, sellers seek to increase the popularity of their own online stores and thus to gain revenue. By contrast, buyers participate on social commerce sites merely out of interest. Despite the limited resources of social commerce sites, attempting to motivate both groups in the same way is ineffective. To date however, IS research into user information sharing has rarely explicitly distinguished between different users of social commerce sites.

To summarize, we believe this paper makes two significant contributions. First, this study helps academics to better understand how and why the differences between sellers and buyers in information sharing behaviors occur. It can advance the understanding of user information sharing in social commerce through the lens of user types (i.e. sellers vs buyers), using motivation theory (i.e. utilitarian, hedonic and social motivations). Previous studies did not distinguish between the three dimensions of motivation, nor between different user types. To our knowledge, this is the first study to identify the effect of differences in user type on user information sharing on social commerce sites. Second, our study will enhance social commerce site managers' understanding of better features for information sharing and differences in motivation between sellers and buyers. This could improve the effectiveness of encouraging strategies and help social commerce sites be more sustainable in the highly competitive contemporary environment.

The rest of the paper is organized as follows. In the second section, we provide literature review and theoretical background of this study. We then provide a conceptual model of information sharing on social commerce sites across different user types (i.e. sellers and buyers). After describing our data source, we explain our empirical strategy (i.e. study one and study two) and present the results of our data analysis. Finally, we conclude with a discussion of the implications for theory and practice.

2. Theoretical background and literature review

2.1 Information sharing

Information sharing has been an important area of IS research for nearly two decades (Alavi and Leidner, 2001; Constant *et al.*, 1994; Jarvenpaa and Staples, 2000; Ma and Agarwal, 2007; Sambamurthy and Subramani, 2005; Wickramasinghe and Weliwitigoda, 2011). Given the much greater internet penetration, individuals from diverse organizational, national and cultural backgrounds can easily exchange information with other users in an online community (Sen *et al.*, 2010; Wenger, 1998). Most IS research into online communities emphasizes knowledge contribution or knowledge sharing. For instance, Wasko and Faraj (2005) adopted a social capital framework to explain why people contribute knowledge. Ma and Agarwal (2007) studied how technology features might influence knowledge contribution through individuals' perceived identity verification. Gu *et al.* (2007) noted the trade-off between the quantity and quality of knowledge contributing posts, and showed that communities of different scales distinguish themselves through strategically manipulating this trade-off. Moon and Sproull (2008) found that a systematic feedback mechanism improved knowledge contribution quality.

However, the issue of information sharing in social commerce, which contains characteristics of both e-commerce and social emotional interactions (Janson and

Cecez-Kecmanovic, 2005), has received little attention (Ridings and Wasko, 2010). Some considerable attention has begun to focus on how and why customers post their opinions, comments and reviews of products/services in online social venues (Cheung and Thadani, 2012; Dellarocas *et al.*, 2010); nevertheless, the results of these studies revealed several inconsistent results comparing to previous information sharing literature (as shown in Table I). Some significant predictors in previous studies, such as reward, reciprocity, etc., were found to have no effects on users' information sharing about products/services (Cheung and Lee, 2012; Lee *et al.*, 2006). This impels us to explore the factors which can help to better define the boundary conditions. We focus on the user types, which is elaborated below.

2.2 Social exchange theory

Prior studies used social exchange theory to explore the issue of an individual's knowledge contribution in the context of a virtual community (Kankanhalli *et al.*, 2005; Lee *et al.*, 2006; Cheema and Kaikati, 2010). Social commerce refers to "a more social, creative and collaborative approach used in online marketplaces" (Huang and Benyoucef, 2013, p. 247). Social commerce sites connect people as a social group by

Source	Theoretical background	Platform	Method	DV	Factors/antecedent	
Cheung and Lee (2012)	Social exchange theory, social identity theory, social cognitive theory	Online consumer-opinion platforms	Survey	WOM intention	Reputation, sense of belonging, enjoyment of helping	Supported
					Reciprocity, moral obligation, knowledge self-efficacy	Not supported
Hennig-Thurau *et al.* (2004)	Motivation theory	Consumer-opinion platform (eopinion.com)	Survey	eWOM behavior	Concern for other consumers, positive self-enhancement, social benefit, economic incentives, advice seeking	Supported
					Platform assistance, venting negative feelings, helping the company	Not supported
Lee *et al.* (2006)	Social exchange theory	Web-based discussion board	Survey	Knowledge sharing among customers in web-based discussion boards	Personal interest Enjoyment of helping Reciprocity	Supported
					Personal interest (knowledge self-efficacy, effort, time, reward), social context (sense of community), technological attributes (usefulness, ease of use, privacy)	Not supported
Wu and Sukoco (2010)	Motivation theory	Online brand communities	Survey	Knowledge sharing	Achievement motive	Supported
					Affiliation motive, power motive	Not supported

Table I. Inconsistent effects of antecedents of information sharing

allowing sharing and exchanging product-related information. Therefore, adopting social exchange theory to study individuals' behavior on social commerce sites is appropriate. According to this theory, sharing behavior is a form of social exchange, which is based on the assessment of social rewards/benefits (Song and Walden, 2007). Benefit is defined as the positive outcome of an exchange, comprising extrinsic and intrinsic benefits (Kankanhalli *et al.*, 2005).

Extrinsic benefits are regarded as "means to ends desired by people" (Kankanhalli *et al.*, 2005, p. 116). Two extrinsic benefits are identified in the context of social commerce sites, namely anticipated extrinsic rewards and anticipated reciprocal relationships (Bock *et al.*, 2005). Intrinsic benefits are regarded as the benefits "sought after as ends by themselves" (Kankanhalli *et al.*, 2005, p. 116). Contributors can be satisfied by sharing information through the pleasure or enjoyment derived (Kankanhalli *et al.*, 2005; Song and Walden, 2007). Thus, enjoyment in helping others is considered as an important intrinsic benefit (Kankanhalli *et al.*, 2005). As stated, benefits are the key behavior motivators (Kankanhalli *et al.*, 2005). Therefore, all three identified benefits, i.e. anticipated extrinsic rewards, anticipated reciprocal relationships and enjoyment in helping others, could motivate users to contribute information online.

2.3 Motivation theory

Motivation theory claims that utilitarian, hedonic and social outcomes act as key determinants of the behavior intention/decision (Venkatesh and Brown, 2001). The tripartite perspectives of utilitarian, hedonic and social dimensions were initially used to measure customer value (Rintamäki *et al.*, 2006), and were later adopted in the IS research domain, including technology adoption, usage, and stickiness (Venkatesh and Brown, 2001; Davis *et al.*, 1992; Venkatesh and Speier, 1999; Yang and Lin, 2014).

Utilitarian motivation focusses on rational and goal-oriented perspectives (Mikalef *et al.*, 2013; Hirschman and Holbrook, 1982; Babin *et al.*, 1994; Wolfinbarger and Gilly, 2001). Hence, a utilitarian-oriented user contributes knowledge in order to complete a mission or task. Hedonic motivation is described as happiness, enjoyment and experiences derived from the sharing process (Mikalef *et al.*, 2013; Babin *et al.*, 1994). This implies that a hedonic-oriented contributor will be satisfied by the experience itself and the emotions evoked. Many previous consumer research studies have explored the value or motivation in product shopping from the utilitarian and hedonic perspectives (Hirschman and Holbrook, 1982; Babin *et al.*, 1994; Arnold and Reynolds, 2003; Westbrook and Black, 1985; Voss *et al.*, 2003; Jones *et al.*, 2006; Batra and Ahtola, 1991). As e-commerce has become prevalent, some researchers have used utilitarian-hedonic or goal-experiential dichotomies to identify the factors affecting online consumers' purchasing decisions (Mikalef *et al.*, 2013; Wolfinbarger and Gilly, 2001; To *et al.*, 2007; Childers *et al.*, 2002). In the context of online shopping, several factors can stimulate a utilitarian-oriented shopping attitude or intention among customers, including cost saving, convenience/ease of use, selection, information availability, lack of sociality, customized products or services, and usefulness, while adventure/exploration, trend discovery, bargain hunting and enjoyment could trigger hedonic online behavior. According to Venkatesh and Brown (2001), utilitarian motivation represents extrinsic motivators, whereas hedonic motivation represents intrinsic motivators. From prior reviews of the extrinsic and intrinsic benefits motivating information sharing, we can conclude that anticipated extrinsic rewards and anticipated reciprocal relationships can be classified as the utilitarian motivations of user information sharing in social commerce, while enjoyment in helping others contributes to hedonic motivation.

Apart from utilitarian and hedonic motivation, Fisher and Price (1992) argued that social motivation, which aims to achieve "public recognition," is also critical. Social motivation is recognized as one important determinant of behavior (Venkatesh and Brown, 2001) and focusses primarily on the enhancement of power, knowledge and status. In the IS domain, social motivation has been proven to influence innovation adoption (Rogers Everett, 1995), technology acceptance in organization (Venkatesh and Davis, 2000), adoption of personal computers in homes (Venkatesh and Brown, 2001) and stickiness to use virtual community (Yang and Lin, 2014). Considering the social perspective of social commerce, we argue that social motivation would also motivate user information sharing intention. Above mentioned studies demonstrate that social outcome is realized by status enhancement. In the research context of information sharing in social commerce, we propose that popularity and reputation, which are two main contributors to online status (De Vries *et al.*, 2012; Rao, 1994; Dutton *et al.*, 1994; Weigelt and Camerer, 1988), are representations of social motivation that induces users' information sharing.

2.4 User types and motivations

Different users seek different outcomes, while different behavior motivations lead to different ways of processing information or making decisions (Graham and Golan, 1991). Some internet users share information primarily for hedonic reasons, while other types of user are motivated to share information in order to achieve utilitarian or social-oriented goals (Childers *et al.*, 2002; Huffman and Houston, 1993; Yang and Lin, 2014). User types can contingently affect the relationships between determinants and adoption/usage decision (Venkatesh and Davis, 2000; Hartwick and Barki, 1994). Users are always distinguished by their different personalities, and the effects on motivations have been studied before. For example, Leung (2013) investigated how narcissistic personality traits and generational differences were related to uses of different social media, concluding that individuals with different personality traits pursue different motivations. Thus, user type is important in understanding the relationship between motivations and information sharing online.

Apart from personalities, there are some other ways to distinguish users. This study focusses on a special classification in the context of social commerce site, i.e. sellers and buyers. As stated before, social commerce provides the opportunity to combine shopping and social networking (Wang and Zhang, 2012), thus it attracts not only buyers or customers but also sellers who own online stores. Compared to other virtual communities which are typically comprised of contributors and passive readers, this classification of user types is unique in the current context. Therefore, it is quite interesting to explore the effect of this unique classification on the relationships between motivations and information sharing intention.

According to uses and gratifications theory, individuals use media to satisfy specific needs (Eighmey and McCord, 1998). Different users use different media to achieve different goals. In parallel, different user types would value different motives. The objectives of sellers and buyers in information sharing are completely different (Chao and Yang, 2012). Sellers are spurred to contribute information with the aim of building their reputations and increase the revenues of their own online stores (Chao and Yang, 2012), while buyers exchange information either for fun or sharing experience (Hirschman and Holbrook, 1982; Chao and Yang, 2012). Therefore, we argue that sellers are more utilitarian-oriented and social-oriented users, while buyers are more hedonic-oriented users. That is to say, sellers pay close attention to utilitarian and social motivations, while buyers care more about hedonic motivation.

3. Research model and hypotheses

Ajzen (1991) asserted in the theory of planned behavior (TPB) that, an individual's belief about consequences of particular behavior will influence their behavior intention, which will in turn affect individual's behavior. In line with TPB, we pay attention to the role of behavior beliefs (i.e. utilitarian motivations, hedonic motivations and social motivations) in information sharing. Based on the review of information sharing benefits and motivation theory, we identified anticipated extrinsic rewards and anticipated reciprocal relationship as utilitarian motivation; enjoyment in helping others as hedonic motivation; popularity and reputation as social motivation. Specifically, we develop a series of hypotheses on how user types (i.e. sellers and buyers) moderate the relationship between three dimensions of motivations and information sharing. Sellers participate on social commerce sites for commercial purposes, with the goal of receiving benefits. We propose that sellers allocate more value to utilitarian and social motivations. Buyers regard hedonic benefits as more important in the process of sharing information on social commerce sites. The relationships between these motivations and user information sharing are well studied. In this study, we focus on the group differences between sellers and buyers. The research model is shown in Figure 1.

3.1 Utilitarian motivations and user types

Users are fundamental drivers of information creation and use. In social commerce, users include sellers, buyers and others (Wang and Zhang, 2012). As in consumer shopping behavior, utilitarian, hedonic and social motivations may be considered fundamental to the understanding of information sharing behavior (Babin *et al.*, 1994; Childers *et al.*, 2002). With utilitarian motivation, users conduct information sharing in a rational and goal-directed manner (Childers *et al.*, 2002). Users also surf on the internet because of the entertainment value or enjoyment. While buyers share information mainly because of intention to share buying experiences, products or interests, sellers are obviously motivated to achieve the instrumentally oriented goals of selling products. Hence, utilitarian motivations will be more meaningful to sellers than buyers. Sellers can market their stores by increasing their reputation, building relationships with potential buyers, and enhancing their status. Thus, utilitarian motives are more likely to motivate sellers to share information online.

As rational beings, individuals try to look for returns (e.g. pay, prizes, reputation and promotion) by maximizing their benefits during the information exchange process with others (Bock *et al.*, 2005; Lakhani and Von Hippel, 2003). These benefits, or "private rewards," are more likely to accrue to users who actively participate (Hippel and Krogh, 2003). In organizational level anticipated extrinsic rewards refers to the incentives or explicit rewards in reward for contributing knowledge (Bock *et al.*, 2005). Similarly, users could get rewards by sharing information on social commerce sites. The rewards offered by social commerce sites (i.e. experience points) could help users to be identified and trusted. Considering that utilitarian motivations are more salient for sellers than buyers, we have the following hypothesis:

H1. The relationship between anticipated extrinsic rewards and intention to share information on social commerce sites will be stronger for sellers, compared with buyers.

Blau (1964) defined reciprocity as "actions that are contingent on rewarding reactions from others and that cease when these expected reactions are not forthcoming," which

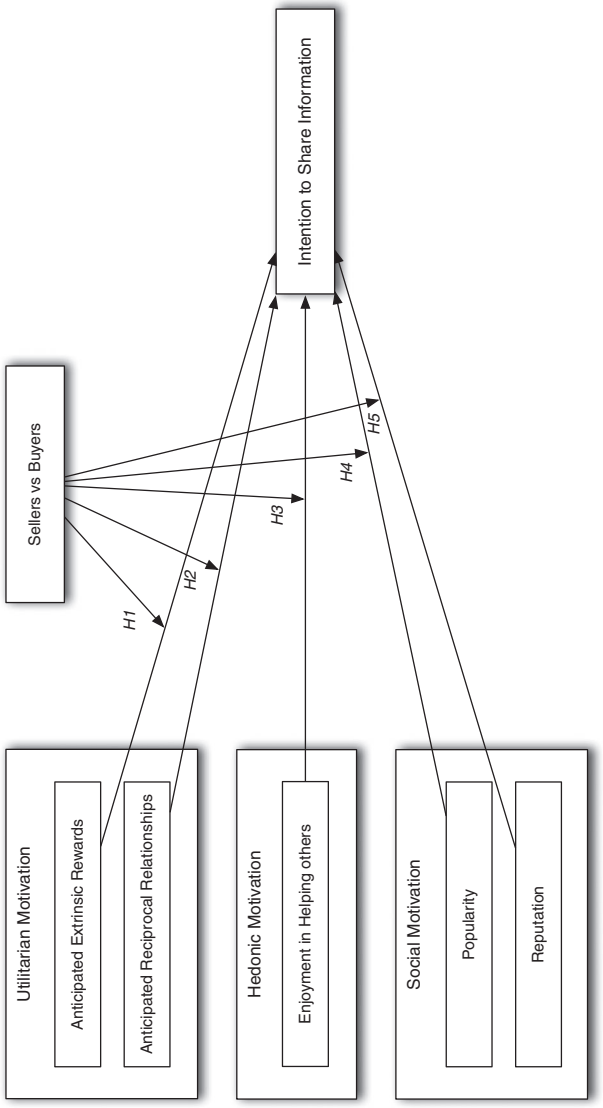

Figure 1.
Research model

implies that anticipated reciprocal relationship is a utilitarian motivation. It can help individuals to build relationships with others and gain benefits from them (Wickramasinghe and Weliwitigoda, 2011). Social exchange theory suggests that individuals in virtual communities expect reciprocity to justify their efforts in information sharing. Previous research shows that intention to share information is enhanced by individuals' anticipated reciprocal relationships (Bock *et al.*, 2005).

On social commerce sites, both sellers and buyers are expected to build relationships with other users. For buyers, sharing information is an attempt to exchange information with others. For sellers, reciprocal relationships could help to achieve their utilitarian goals by establishing connections with potential buyers. Sellers tend to share information to enrich their relationship with buyers (Smith, 1998), which could help to lower cost, increase customers satisfaction and retention, and enhance revenues (Jayachandran *et al.*, 2005). Accordingly, sellers prefer to make use of social commerce to manage relationship. Thus, sellers are more utilitarian-oriented, so that they may value utilitarian motivation more than buyers do. Therefore, we have the following hypothesis:

H2. The relationship between anticipated reciprocal relationships and intention to share information on social commerce sites will be stronger for sellers, compared with buyers.

3.2 Hedonic motivation and user types

Hedonic-oriented users have their own preferences. Buyers may seek pleasant experiences and emotional connections to other buyers, which represent the "social" side of shopping. Similarly to offline shopping behavior, social commerce online can also involve hedonic behavior, motives or orientation (Wang and Zhang, 2012). Apparently, sellers scarcely experience this motivation, unless they are engaging in purchase online. Therefore, hedonic motivation is more important for buyers than sellers. Among the attributes stimulating information sharing, enjoyment in helping others serves as hedonic motivation (Babin *et al.*, 1994).

Enjoyment in helping others is one kind of emotion evoked during the information sharing process. This enjoyment of helping in online communities has been recognized as an intrinsic motivation that explains individuals' willingness to share knowledge (Wasko and Faraj, 2005; Kankanhalli *et al.*, 2005; Hennig-Thurau *et al.*, 2004). Individuals who like to help others are more willing to share information online without expecting rewards in return. For sellers, they are willing to get profit rather than helping others. Stated alternatively, enjoyment in helping others will be experienced more for buyers. Therefore, we expect that buyers are likely to exhibit a stronger relationship between enjoyment in helping others and intention to share information than sellers do. This leads to the following hypothesis:

H3. The relationship between enjoyment in helping others and information sharing behavior on social commerce sites will be stronger for buyers, compared with sellers.

3.3 Social motivations and user types

Social commerce utilizing Web 2.0 in e-commerce involves both business outcomes and social interaction among customers. Apart from utilitarian and hedonic outcomes,

social outcomes affect users' information sharing on social commerce sites. Social motivation is to pursue the social recognized or strengthened social self-concept generated by service use (Yang and Lin, 2014). The social dimension has been widely explored in prior information sharing research from social exchange and social capital perspectives (Wasko and Faraj, 2005; Kankanhalli *et al.*, 2005; Lee *et al.*, 2006; Cheema and Kaikati, 2010; Nahapiet and Ghoshal, 1998). These researchers concluded that social motivation/value plays an important role in users' behavior decisions on social commerce sites. Considering that social commerce aims to "assist consumers in their decision making and acquisition of products and services within online marketplaces and communities" (Huang and Benyoucef, 2013, p. 247), buyers participate in social commerce mainly to search for information concerning products or services, in order to make buying decisions, whereas make use of social commerce to increase popularity and enhance status to achieve social purpose.

Status is the main social outcome that users actively pursue by contributing information (Lin, 1999). Status refers to a relative position (i.e. opinion leader) in the network of actors (Rindova *et al.*, 2006), implying the act of social acceptance (Bitektine, 2011). Popularity and reputation are recognized as two dimensions of social outcomes that enhance user status. Popularity gives an indication of the users' recognition in social commerce (De Vries *et al.*, 2012), while reputation is one aspect of social identity (Rao, 1994). Hence, it is reasonable and acceptable to regard popularity and reputation as two social motivations.

User popularity reflects the number of a user's fans (De Vries *et al.*, 2012). Greater popularity in networks tends to indicate greater attractiveness and trustworthiness, and enables the users to enjoy greater benefits in a social network (Stephen and Toubia, 2009). Popular users are seen as dependable, and attract a large audience. Thus, we expect that popular sellers could have greater opportunities to advertise their products and stores. Furthermore, when sellers engage in information sharing on a social commerce site, they pay more attention to attract fans and put more effort to become opinion leader. To gain more fans, sellers may participate actively by posting products. To become opinion leader, sellers will share more experiences. In other words, the relationship between popularity and user information sharing on social commerce sites will be strengthened for sellers. Conversely, gaining popularity for buyers is not such an important objective. Thus, we have the following hypothesis:

H4. The relationship between popularity and information sharing behavior on social commerce sites will be stronger for sellers, compared with buyers.

Reputation represents outsiders' belief based on users' past performances (Dutton *et al.*, 1994; Weigelt and Camerer, 1988). Wasko and Faraj (2005) suggested that individuals share and contribute their knowledge to gain informal recognition and to establish their reputation. Users with high reputation are trustworthy (Wong and Boh, 2010; Lewicki and Tomlinson, 2003). We expect that users will be willing to share information in social commerce to gain reputation. Specifically, sellers are eager to be approved of by other users, to make their stores dependable. To gain high reputation, sellers may participate actively by posting high quality information. In other words, the relationship between reputation and user information sharing on social commerce sites will be strengthened for sellers. Thus, we have the following hypothesis:

H5. The relationship between reputation and information sharing behavior on social commerce sites will be stronger for sellers, compared with buyers.

4. Methodology

4.1 Research setting

To validate our research, we conducted two studies: study one aims to verify whether different user types behave differently in the social commerce sites by using panel data; study two aims to validate the research model by conducting an online survey.

The data for both studies was collected from Meilishuo.com (www.meilishuo.com), a popular online social shopping community. Launched in November 2009, Meilishuo.com is now one of the most popular websites in Mainland China, with more than 32 million registered members. The daily user sharing volume is more than 3.4 million and the daily number of page views is more than 164 million. Meilishuo.com has conventional direct sharing features, and users can post their favorite products by providing a picture or a link and a brief description of the product. Users can include detailed product information, such as product price, tags and information about the online shops that sell the product. Purchases can be made through links to the online stores. Social sharing features are integrated into the platform. Users can award "likes" to others' shared products, which will then appear on their "My likes" page. The site also provides social networking features. Users can "follow" other users, and can easily read the sharing from users they follow. In this sense, each customer has his/her own social network within the community and is regarded as an ego actor in the social network. This platform provides rich network data that allow us to empirically explore user information sharing behavior on social commerce sites.

Nowadays, more and more sellers from traditional e-commerce sites are becoming users of Meilishuo.com and recommending their products in Meilishuo.com. The information shared by non-sellers of Melishuo.com is product related. Additionally, the products shared by sellers also include price information, as highlighted. Therefore, Meilishuo.com is an appropriate online social commerce site for us to use to explore the differences in motivations to share between different user types.

4.2 Study one

To get an initial understanding about the differences in user types, we first conduct a study before the main survey study. This first study attempts to explore whether sellers and non-sellers differ in certain aspects which could be reflected in their different use patterns on social commerce sites. The different roles of users are identified from the product information shared. We suppose that if a user predominately shares products from a single online store, then that user is a seller. The other users are defined as non-sellers, including buyers (those users who did not own an online store and had ever purchased products) and ordinary users (i.e. neither selling nor buying). The reason why the category of non-sellers is investigated, rather than buyers, is that it is not possible to identify buyers from panel data. Using panel data allows us to further verify the different behaviors of different user types based on actual observed usage behavior (i.e. by sellers and non-sellers).

We randomly gathered some objective data from the social commerce site (meilishuo.com). We randomly crawled panel data from 892 users (372 sellers and 520 non-sellers) on Meilishuo.com, including the numbers of fans, followers, heart been like, products shared and likes given to others. Below, we briefly report the findings of this pre-study.

From our initial analysis, we identified several differences between sellers and non-sellers. The detailed results are shown in Table AI, and Figure 2 illustrates those

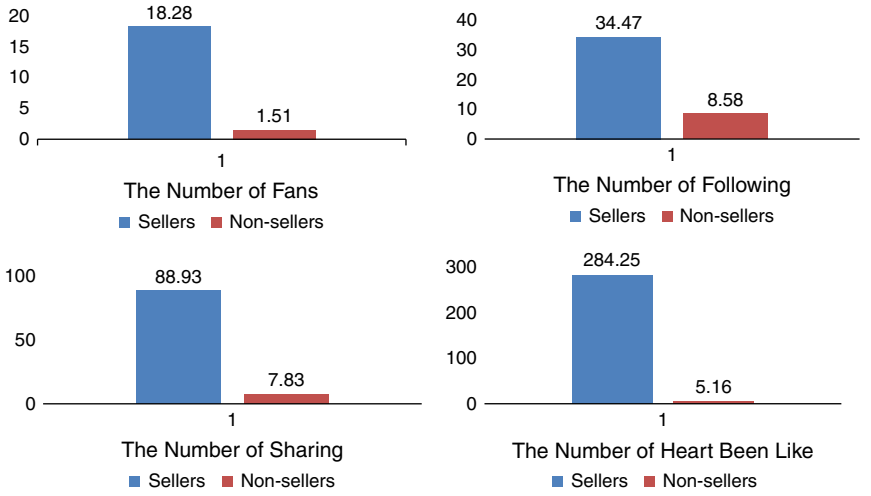

Figure 2.
Differences between sellers and non-sellers

differences identified. First, the number of fans differed significantly, with sellers having more fans than non-sellers ($F = 36.514$, $p < 0.001$). Second, sellers follow other users more than non-sellers ($F = 32.222$, $p < 0.001$). Third, sellers receive more likes from other users than non-sellers ($F = 9.680$, $p < 0.01$). Fourth, sellers share more information than non-sellers ($F = 22.814$, $p < 0.001$). Fifth, sellers like more products shared by other users than non-sellers ($F = 2.868$, $p < 0.1$). Sixth, sellers follow more magazines than non-sellers ($F = 21.057$, $p < 0.001$). These data indicate that sellers and non-sellers on social commerce sites have different use patterns, which implies that different user types behave differently in social commerce. Notably, sellers share significantly more information than other users, which verifies that different motivational mechanisms underlie the sharing of information by sellers and non-sellers. Given that social commerce survival depends on information sharing, it is indeed necessary to understand the underlying considerations of information sharing by different user types, in order to motivate all users to share information.

4.3 Study two

4.3.1 Research design and data collection procedure. To further test our research model, an online survey was conducted in the same website following study one. The study used a multi-method approach to collect data (see Figure 3). First, we collected subjective data through an online survey study. Second, using the respondents' customer ID, we trawled the website to gather their data. We conducted an online survey and invited members of Meilishuo to fill in an online questionnaire. Users were

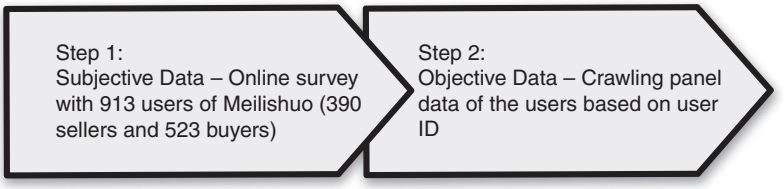

Figure 3.
Data collection illustration

identified by their network IP addresses at the time of connection to the online survey questionnaire. In the same period, we used the respondents' user IDs to garner network data on each of the respondents from the Meilishuo community. Specifically, we collected both his/her "following" and "follower" users lists, and built an ego-centric network for each respondent in this study.

The questionnaire was distributed by an online-survey data collection service provider in China. This service provider has access to over two million samples, which are recruited from search engines, online forums and member recommendations. The samples are verified through their cell phones or e-mails to validate their identities. The sampling pool covers people with a range of demographics. Therefore the data collected from the sampling pools by this survey service are considered as reliable as data collected using other methods (Buhrmester *et al.*, 2011).

We required users of Melishuo.com to participate in this survey, and the service provider helped us to distribute our survey questionnaire to the users of Melishuo.com in the sampling pool. A total of 1,170 completed responses were obtained. We identified 390 respondents who owned an online store as sellers. Those respondents who did not own an online store and had ever purchased products on Meilishuo.com, 523 respondents, were designated as buyers. Thus, a total of 913 responses were included as final data pooling for data analysis. Among the 913 respondents, 92.4 percent were females and 7.6 percent were males. Considering Meilishuo.com primarily targets female users[1], this matches the gender profile of users on the website. The majority of our respondents (83.5 percent) were aged between 20 and 29, and 77.8 percent of our respondents had an education level of university or above. Most of our respondents (86.1 percent) used a computer to log into online social shopping communities.

4.3.2 Measurement. Apart from popularity, the other measures of the constructs (i.e. anticipated extrinsic rewards, anticipated reciprocal relationship, enjoyment in helping others, reputation and intention to share information) in this study were adapted from existing scales which have been proven to be reliable and valid, as shown in Table II. In particular, anticipated extrinsic rewards in social commerce context included two types of rewards namely monetary rewards and additional points. These two types of rewards defined the meaning of extrinsic rewards, thus we measured anticipated extrinsic rewards as a formative construct (Petter *et al.*, 2007). Several minor wording modifications were applied to fit the research context. All constructs were measured using multi-item perceptual scales and were investigated using a seven-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The popularity of a user refers to the number of ties from other users to a focal user. In this study, it is operationalized as the total number of followers:

$$Popularity = \sum follower_i,$$

where follower$_i$ is the number of followers that user i has. The classification of sellers was measured by a single question, by asking participants whether they own online stores or not, while the classification of buyers was measured by asking whether they had experience of shopping through this social commerce website. Moreover, sellers who also had shopping experience were excluded from the data pool to ensure that users performed only a single role.

Construct	Items	Sources
Reputation (REPU)	1. I feel that my participation in meilishuo.com improves my status in the profession 2. I participate in meilishuo.com to improve my reputation in the profession 3. I earn respect from others by participating in meilishuo.com	Wasko and Faraj (2005)
Anticipated extrinsic reward (AER)	1. I will receive monetary rewards in return for my knowledge sharing in meilishuo.com 2. I will receive additional points for promotion in return for my knowledge sharing in meilishuo.com	Bock *et al.* (2005)
Enjoyment in helping others (EH)	1. I like helping other members in meilishuo.com (extremely disagree/extremely agree) 2. It feels good to help others members in meilishuo.com (extremely disagree/extremely agree) 3. I enjoy helping other members in Meilishuo.com. (extremely disagree/extremely agree)	Wasko and Faraj (2005), Cheung and Lee (2012)
Anticipated reciprocal relationships (ARR)	1. My knowledge sharing would get me well-acquainted with new members in meilishuo.com 2. My knowledge sharing would expand the scope of my association with other members in meilishuo.com	Bock *et al.* (2005)
Intention to share information (ISI)	1. I intend to share my experience with other members in meilishuo.com more frequently in the future 2. I will always provide my experiences at the request of other meilishuo.com members 3. I will try to share my expertise with other members in meilishuo.com in a more effective way 4. I often help other people in meilishuo.com who need information from other members	Bock *et al.* (2005), Cheung and Lee (2012)

Table II.
Measurement of constructs

5. Data analysis and results for study two

Since popularity was measured with objective data crawled from real users of Melishuo.com, this study utilizes SPSS software to test the hypotheses. The between-group differences (sellers vs buyers) were tested by first estimating path coefficients for each group separately and then conducting a between-group *t*-test with pooled standard errors to obtain the significance across each group (Keil *et al.*, 2000; Qureshi and Compeau, 2009). The data analysis in this study comprised two stages. The confirmatory factor analysis and correlations of the full sample and of each subgroup were first examined, and then the path coefficients of each group and the comparison results were presented.

5.1 Measurement model

5.1.1 Confirmatory factor analysis (CFA). The measurement model of formative constructs and reflective constructs is assessed by different manners. As to formative constructs, the reliability was assessed with multicollinearity evaluation among indictors of formative constructs (Diamantopoulos and Siguaw, 2006). The high multicollinearity may create unstable indicator weights and indicate low reliability of constructs (Cenfetelli and Bassellier, 2009). The validity of formative constructs was examined with both the item weights, the relative importance of indicators, and the item loadings, the absolute importance of indicators (Cenfetelli and Bassellier, 2009). The significant item weights and loadings provided empirical support for validity

of formative constructs. The results for all samples and subsamples were shown in Table III, and confirmed that the formative construct, anticipated extrinsic rewards, passed all the thresholds.

The reliability of reflective constructs was assessed with Cronbach's α, composite reliability, and average variance extracted. CFA was conducted to examine the construct validity (including convergent validity and discriminate validity) by checking whether the loadings on the target constructs were relatively high and the loadings on other constructs were comparatively low. The initial results showed that the first item of reciprocity did not load well in any construct, therefore we deleted it from the final data analysis. The results of reliability criteria and CFA for the full sample and for each subgroup are presented in Tables IV and V, respectively, indicating satisfactory reliability, convergent and discriminant validities for all the constructs for both the full sample and each subgroup.

5.1.2 Descriptive and correlations. The descriptive statistics of all variables including mean value, standard deviation and correlations were shown in Table VI. As observed, some correlations between constructs were relatively high, indicating the possibility of multicollinearity problem. However, the variance inflation factor values for constructs of all samples and each subsamples ranged from 1.009 to 1.998, 1.011 to 2.114, and 1.012 to 1.918, respectively, which was acceptable (Petter *et al.*, 2007). This suggested that the psychometric properties of the whole instrument was satisfactory.

5.2 Common method bias

Self-reported surveys have the potential for common method bias, so we examined the common method bias for the self-reported reflective constructs (Podsakoff *et al.*, 2003),

ALL (n = 913)						
	VIF	Indicators	Weights	*t*-statistics	Loadings	*t*-statistics
Anticipated extrinsic rewards	1.981	Reward1	0.384	4.228	0.871	24.115
		Reward2	0.692	8.314	0.962	51.675
Sellers (n = 390)						
	VIF		Weights	*t*-statistics	Loadings	*t*-statistics
Anticipated extrinsic rewards	1.962	Reward1	0.477	5.729	0.902	29.749
		Reward2	0.606	7.404	0.940	43.349
Buyers (n = 523)						
	VIF		Weights	*t*-statistics	Loadings	*t*-statistics
Anticipated extrinsic rewards	1.993	Reward1	0.307	2.348	0.843	15.482
		Reward2	0.760	6.694	0.976	44.465

Table III.
Reliability and validity of formative constructs

	ALL ($n = 913$)			Sellers ($n = 390$)			Buyers ($n = 523$)		
	α	CR	AVE	α	CR	AVE	α	CR	AVE
Anticipated reciprocal relationships (ARR)	0.837	0.925	0.860	0.780	0.901	0.820	0.880	0.943	0.892
Enjoyment in helping others (EH)	0.897	0.936	0.829	0.890	0.932	0.819	0.903	0.939	0.838
Reputation (REPU)	0.897	0.936	0.830	0.891	0.933	0.822	0.900	0.938	0.834
Intention to share information (ISI)	0.889	0.923	0.751	0.872	0.913	0.723	0.899	0.930	0.768

Table IV.
Reliability of reflective constructs

Notes: CR, composite reliability; AVE, average variance extracted; α, Cronbach's α

	ALL ($n = 913$)				Sellers ($n = 390$)				Buyers ($n = 523$)			
	ARR	EH	REPU	ISI	ARR	EH	REPU	ISI	ARR	EH	REPU	ISI
ARR1	0.929	0.489	0.396	0.399	0.902	0.461	0.396	0.433	0.949	0.512	0.398	0.376
ARR2	0.925	0.533	0.384	0.389	0.909	0.559	0.419	0.447	0.940	0.511	0.359	0.349
EH1	0.481	0.909	0.473	0.520	0.476	0.906	0.468	0.490	0.487	0.912	0.472	0.542
EH2	0.494	0.909	0.461	0.454	0.484	0.904	0.491	0.443	0.502	0.913	0.436	0.462
EH3	0.529	0.913	0.439	0.483	0.571	0.905	0.480	0.482	0.497	0.921	0.405	0.485
REPU1	0.380	0.463	0.923	0.476	0.408	0.465	0.922	0.525	0.359	0.459	0.923	0.432
REPU2	0.378	0.451	0.925	0.487	0.391	0.478	0.922	0.502	0.371	0.427	0.927	0.467
REPU3	0.394	0.462	0.884	0.447	0.428	0.499	0.874	0.471	0.369	0.429	0.889	0.420
ISI1	0.353	0.467	0.437	0.870	0.414	0.481	0.461	0.851	0.313	0.456	0.411	0.881
ISI2	0.397	0.512	0.414	0.872	0.450	0.509	0.438	0.869	0.357	0.512	0.389	0.874
ISI3	0.376	0.440	0.460	0.868	0.401	0.386	0.492	0.839	0.359	0.482	0.426	0.887
ISI4	0.345	0.432	0.479	0.855	0.388	0.393	0.488	0.843	0.317	0.461	0.465	0.863

Notes: ARR, anticipated reciprocal relationship; EH, enjoyment in helping others; REPU, reputation; ISI, intention to share information. Shading indicated that all the loadings of items in their focal constructs were greater than 0.800 and were larger than their loadings in other constructs

Table V.
Loadings and cross-loadings of reflective constructs

	Mean	SD	AER	ARR	EH	REPU	ISI	POPU
ALL ($n = 913$)								
AER	5.23	1.265	1					
ARR	6.0011	0.95283	0.337	1				
EH	5.88	0.945	0.452	0.549	1			
REPU	5.25	1.176	0.657	0.421	0.503	1		
ISI	5.63	0.948	0.438	0.424	0.531	0.518	1	
POPU	2,647.44	25,094.684	0.091	0.042	0.034	0.079	0.079	1
Sellers ($n = 390$)								
AER	5.303	1.304	1					
ARR	6.015	0.95	0.329	1				
EH	5.926	0.976	0.437	0.56	1			
REPU	5.392	1.182	0.661	0.45	0.53	1		
ISI	5.749	0.915	0.441	0.485	0.517	0.553	1	
POPU	4,235.09	35,179.098	0.097	0.038	0.022	0.073	0.119	1
Buyers ($n = 523$)								
AER	5.17	1.233	1					
ARR	5.99	0.955	0.343	1				
EH	5.842	0.92	0.462	0.541	1			
REPU	5.144	1.162	0.652	0.401	0.479	1		
ISI	5.542	0.963	0.432	0.383	0.541	0.484	1	
POPU	1,463.532	13,217.554	0.097	0.064	0.06	0.099	0.016	1

Table VI.
Descriptive statistics and correlations

following the unmeasured latent method in PLS proposed by Podsakoff *et al.* (2003) and Liang *et al.* (2007). The results are shown in Table VII. The method factor was introduced into the model, and the variances explained by both the substantive constructs and the common method factor were calculated. The results indicated that the average variance explained by substantive constructs was 0.809, while the average variance explained by the common method factor was only 0.001, which is much smaller. This suggests that common method bias is not a major concern in this study.

Construct	Indicators	Substantive factor loading ($R1$)	$R1^2$	Method factor loading ($R2$)	$R2^2$
Anticipated reciprocal relationship (ARR)	ARR2	0.932	0.868	−0.007	0.000
	ARR3	0.923	0.852	0.007	0.000
Enjoyment in helping others (EH)	EH1	0.850	0.722	−0.006	0.000
	EH2	0.957	0.916	−0.006	0.000
	EH3	0.925	0.855	0.013	0.000
Reputation(REPU)	REPU1	0.928	0.860	0.063	0.004
	REPU2	0.928	0.861	−0.050	0.003
	REPU3	0.876	0.768	−0.012	0.000
Intention to share information (ISI)	ISI1	0.890	0.793	−0.023	0.001
	ISI2	0.842	0.709	0.034	0.001
	ISI3	0.879	0.772	−0.011	0.000
	ISI4	0.855	0.732	0.000	0.000
Average			0.809		0.001

Table VII. Common method bias

5.3 Between-group differences comparison

The path coefficients for each subgroup were estimated by linear regression in SPSS. The formula was:

$$\mathrm{ISI} = \alpha + \beta_1 \mathrm{AER} + \beta_2 \mathrm{ARR} + \beta_3 \mathrm{EH} + \beta_4 \mathit{Popularity} + \beta_5 \mathit{Reputaiton}$$

where ISI is intention to share information, AER is anticipated extrinsic rewards, ARR is anticipated reciprocal relationship, and EH is enjoyment in helping others.

The results are presented in Figures 4 and 5. For sellers, anticipated reciprocity ($\beta = 0.207$, $t = 4.293$, $p < 0.001$), enjoyment in helping others ($\beta = 0.210$, $t = 4.089$, $p < 0.001$), popularity ($\beta = 0.077$, $t = 1.970$, $p < 0.05$) and reputation ($\beta = 0.287$, $t = 5.056$, $p < 0.001$) were found to have positive effects on intention to

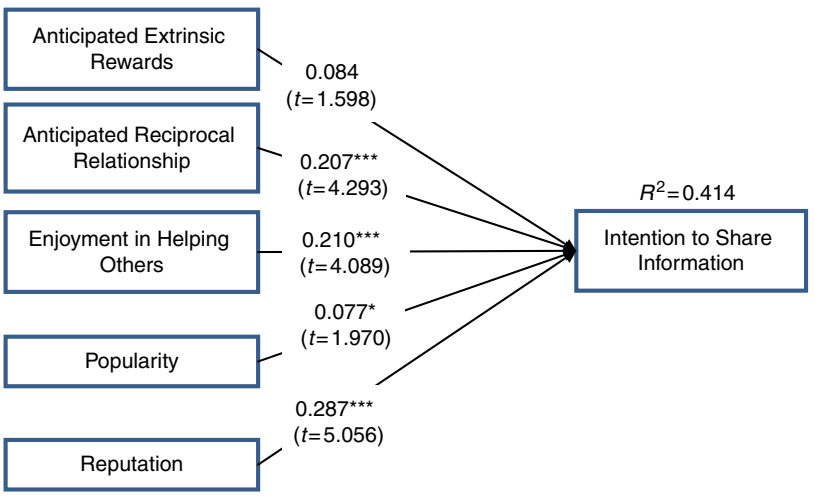

Figure 4. Structural model for sellers

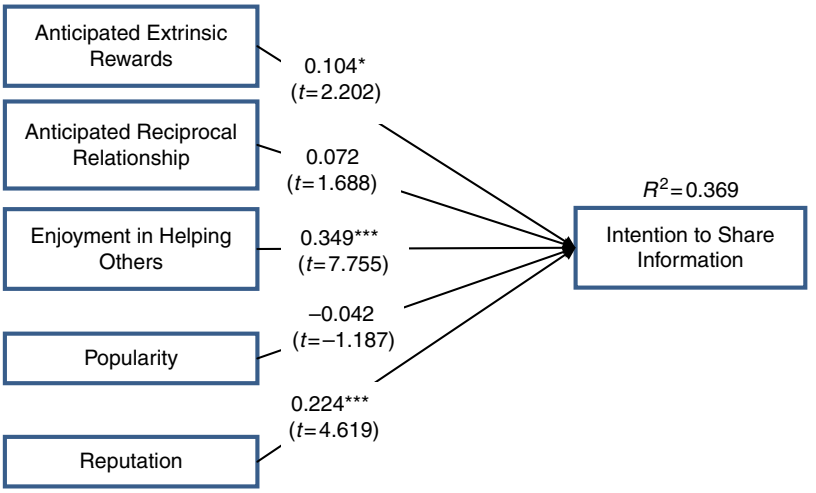

Figure 5.
Structural model for buyers

share information. The variance explained by these factors was 0.414. As for buyers, anticipated extrinsic rewards ($\beta = 0.104$, $t = 2.202$, $p < 0.05$), enjoyment in helping others ($\beta = 0.349$, $t = 7.755$, $p < 0.001$) and reputation ($\beta = 0.224$, $t = 4.619$, $p < 0.001$) positively affected intention to share information. The variance explained by these factors was 0.369.

The between-group differences were calculated with a *t*-test, by comparing the path coefficients of the same relationship for seller and buyer subgroups (Qureshi and Compeau, 2009; Keil *et al.*, 2000; Sia *et al.*, 2009). The formula is given in Appendix 2, and the results are presented in Table VIII. Specifically, anticipated extrinsic rewards were significant for buyers, but insignificant for sellers, and their effects were significantly different, with the coefficient for the buyers' group significantly higher than that of the sellers' group ($\Delta\beta = 0.020$, $t = 6.034$, $p < 0.001$). Thus, *H1* was inversely supported. Anticipated reciprocity was found to be significant for sellers, but insignificant for buyers, and its effects were also significantly different, with the coefficient for the sellers' group significantly higher than that of the buyers' group ($\Delta\beta = 0.136$, $t = 48.752$, $p < 0.001$), thus supporting *H2*. Enjoyment in helping others was found to be significant for both groups, but the effects were significantly different, with the coefficient for the sellers' group significantly higher than that of the buyers' group: $\Delta\beta = 0.139$ ($t = 47.061$, $p < 0.001$). Thus, *H3* was supported. *H4* was also

Constructs	Sellers ($n = 390$) β	*t*-value	Buyers ($n = 523$) β	*t*-value	Sellers vs buyers $\Delta\beta$	*t*-value
Anticipated extrinsic rewards (AER)	0.084	1.598	0.104*	2.202	−0.020	−6.034***
Anticipated reciprocal relationship (ARR)	0.207***	4.293	0.072	1.688	0.136	48.752***
Enjoyment in helping others (EH)	0.210***	4.089	0.349***	7.755	−0.139	−47.061***
Popularity	0.077*	1.970	−0.042	−1.187	0.119	51.974***
Reputation	0.287***	5.056	0.224***	4.619	0.064	19.695***
R^2	0.414		0.369		n/a	

Notes: *$p < 0.05$; ***$p < 0.001$

Table VIII.
Path coefficient comparisons between sellers and buyers

supported, as the effect of popularity was significantly higher for the sellers' group than for the buyers' group ($\Delta\beta = 0.119$, $t = 51.974$, $p < 0.001$). The effects of reputation for the sellers' and buyers' groups were also significantly different ($\Delta\beta = 0.064$, $t = 19.695$, $p < 0.001$), supporting *H5*.

6. Conclusion and discussion

6.1 General discussion

The main purpose of this study was to explore the differences of user types (i.e. sellers and buyers in this study) in user information sharing on social commerce sites. Sellers and buyers have different primary goals when participating in social commerce sites. Accordingly, we hypothesized that they are motivated to share information based on different types of motivations. Considering utilitarian, hedonic and social motivations, we found that sellers are motivated more by utilitarian and social motivations than are buyers. Moreover, buyers participate in social commerce sites for fun and interest. Thus, they are motivated more by hedonic motivations than sellers are. The results of this study confirm most of our hypotheses.

Consistent with our hypotheses, sellers are motivated more by anticipated reciprocity, popularity and reputation than buyers are. Buyers are motivated more by enjoyment in helping others, enjoying the pleasure offered by sharing information on social commerce sites. Surprisingly, anticipated extrinsic rewards, which are traditionally considered a utilitarian motivation, failed to have a strong effect on sellers. One plausible explanation is that the rewards here are mainly virtual rewards from the social commerce sites. Sellers may care more for actual revenues in the real world, rather than virtual gains. Furthermore, under these conditions, such rewards provide more intangible value to users, rather than instrumental value, which may explain why their effect is much stronger for buyers.

6.2 Limitations

Before discussing the implications of our research, we will first discuss the limitations of this study. There are two major limitations. First, the data were collected from users of Melishuo.com, which is the most famous social commerce site targeting female users in China. This would bring about gender and culture issues. Whether these results could be replicated for male users and in other cultural contexts requires further investigation. Therefore, we suggest further studies to test our hypotheses in other contexts. Second, this study only investigated the effects of five benefits in terms of three kinds of motivations. However, there have many other motivations from other perspectives discussed in prior literature. Therefore, future research could investigate differences between sellers and buyers as regards other motivations.

6.3 Implications

6.3.1 Theoretical implications. This paper has several important theoretical implications. First, this study can advance the understanding of information sharing literature by incorporating commercial factors and exploring the differences between sellers and buyers, filling a gap in our understanding of contingent effects. The results of prior studies concerning the effects of the antecedents of information sharing have been inconsistent. This issue is resolved to some extent by our research. Specifically, we add social motivations (i.e. popularity and reputation) to the extant determinants of user information sharing in the online environment. Moreover, we explore the

differences between different types of users. As hypothesized, user type exhibits a significant moderating effect on the relationships between hedonic, utilitarian and social motivations and user information sharing. Sellers exert a positive moderating effect on utilitarian and social motivations, while buyers are found to have a positive moderating effect on hedonic motivations. The results reveal some interesting patterns related to user type on social commerce sites, suggesting avenues for further theoretical and empirical work in this emerging area of inquiry. To the best of our knowledge, this study is one of the first to demonstrate the moderating role of user type on user information sharing on social commerce sites.

Second, our study extends the existing research of the antecedents or motivations of information sharing in online behavior. Previous studies have primarily explored the online sharing behavior from extrinsic and intrinsic perspectives, which is unable to reflect the social value of social commerce directly. This research employs social motivation (i.e. popularity and reputation) to indicate the social perspective of social commerce website.

Third, existing studies have focussed primarily on traditional online communities (Lee *et al.*, 2009), whereas this study enriches the literature by examining user information sharing behavior in a new social media arena, that of social commerce sites. As stated, social commerce sites can encourage users to share product information, to purchase from the sites and to find people with similar interests. They are still new, so that their owners are still finding ways to manage such websites more competently. However, not enough attention has been paid to this area. The current study aims to extend this stream of research.

6.3.2 Practical implications. This study also provides several implications for practice. First, social commerce sites are still relatively new to the social media arena, with the result that their owners are still finding ways to motivate users. By understanding the differences between sellers and buyers, owners of social commerce sites can adopt different motivating strategies for different user types. This could enhance the effectiveness of motivating strategies, and help social commerce sites to better attract and retain members, increasing sustainability in this highly competitive environment.

Second, rewards have traditionally been regarded as a form of extrinsic motivation, which should have a strong effect on people pursuing utilitarian values (Kankanhalli *et al.*, 2005). However, in this study, the results indicate that buyers care more than sellers about receiving virtual rewards. This unexpected result shows that the rewards provided by owners now are more likely to motivate buyers. Therefore, apart from providing an enjoyable experience, social commerce owners should also provide more innovative reward systems reflecting their virtual identification to motivate and retain buyers.

Third, social commerce site owners should motivate sellers by offering utility and social value. Unlike on traditional social sites, sellers are a special group of users contributing information, which is important to the survival of websites. Moreover, our study shows that sellers are more active users, compared to buyers. Hence, website owners should pay more attention to sellers. With the help of our study, website owners could recognize that sellers should be motivated differently from the traditional methods. Social commerce websites could help sellers to build relationships with users and enhance their status. Moreover, if the owners of social commerce sites want to motivate sellers with external rewards, they should find other reward systems of greater value to them, rather than virtual rewards.

6.4 Conclusion

In this study, we use utilitarian, hedonic and social motivations to explain how differences in user type affect information sharing on social commerce sites. We extend the existing framework of information sharing research by identifying three dimensions of motivations influencing user information sharing, and exploring the differences between sellers and buyers in user information sharing patterns on social commerce sites. In addition, we empirically test our research model and hypotheses using survey data and panel data. Our study will bring new insights to researchers with a strong interest in understanding information sharing behavior on social commerce sites.

Note

1. http://marketingtochina.com/meilishuo-shopping-guide-chinese-women/

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Appendix 1

Source	Mean		df	Mean square	*F*	Sig.
The number of fans	Sellers	18.28	1	60,993.678	36.514	0.000
	Non-sellers	1.51				
The number of following	Sellers	34.47	1	145,421.187	32.222	0.000
	Non-sellers	8.58				
The number of heart been like	Sellers	284.25	1	1.689E7	9.680	0.002
	Non-sellers	5.16				
The number of sharing	Sellers	88.93	1	1,426,249.331	22.814	0.000
	Non-sellers	7.83				
The number of like giving to others	Sellers	175.65	1	5,142,340.403	2.868	0.091
	Non-sellers	21.66				
The number of following magazine	Sellers	386.12	1	1.376E7	21.057	0.000
	Non-sellers	134.23				

Table AI. ANOVA summary table for the differences between sellers and non-sellers

Appendix 2. Path coefficients comparison method (Keil *et al.*, 2000)

$$S_{pooled} = \sqrt{\left\{\left[\frac{N_1-1}{N_1+N_2-2}\right] \times SE_1^2 + \left[\frac{N_2-1}{N_1+N_2-1}\right] \times SE_2^2\right\}}$$

$$t = (PC_1-PC_2)/\left[S_{pooled} \times \sqrt{\left(\frac{1}{N_1}+\frac{1}{N_2}\right)}\right]$$

where S_{pooled} is the pooled estimator for the variance, t is the t-statistics with N_1+N_2-1 degrees of freedom, N_i is the sample size of group i, SE_i is the standard error of path in the structural model of group i, and PC_i is the path coefficient in the structural model of group i.

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