Exploring consumers' impulse buying behavior on social commerce platform: The role of parasocial interaction

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ABSTRACT

Social commerce, a recent branch of e-commerce, has made the experience of consumers on social commerce platform (SCP) different from other contexts, as the consumers have social interactions with each other. Growing evidence also shows that consumers on these platforms are prone to impulse buying behavior owing to the social interactions. However, existing research on online impulse buying was limited when illustrating the behavior of consumers on SCPs as social relationship constructs were not included. New theoretical developments are needed in regard to fill the research gap. In this research, parasocial interaction (PSI) theory is introduced in this research to examine the influence of social relationship factors on the formation of impulse buying behavior. An empirical research has been conducted on Mogujie (www.mogujie.com), one of the most popular image-sharing SCPs in China. Results indicate that PSI exerts an impact on impulse buying tendency, the social-relevant features of the SCP determine PSI, and perceived usefulness and PSI both significantly affect perceived enjoyment. In addition, consumers' perceived enjoyment and impulse buying tendencies significantly affect their urge to buy impulsively. The implications, limitations, and discussions are provided.

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1. Introduction

With the rapid development of social networking sites, such as Facebook, Twitter, and Pinterest, both consumers and companies are paying increased attention to social commerce. Social commerce is a combination of social media and e-commerce, and its essence is the conduct of all kinds of commercial activities by exploiting online social capital in social media (Liang, Ho, Li, & Turban, 2011). Consumers benefit from social commerce in which the online interactions and contributions of other consumers assist in the acquisition of products and services are supported by Web 2.0 social media technologies (Kim & Park, 2013; Liang & Turban, 2011). Companies also benefit from social commerce since they can develop closer relationships with consumers, and the high quality of relationships will increase sales and help consumers to form loyalty to the company (Hajli, 2014). Therefore, social commerce may be one of the most important areas of information systems and marketing research in the coming decade (Hajli, 2014).

Social commerce platforms (SCPs), which have emerged from Web 2.0, are online shopping services that connect consumers and allow them to discover, share, recommend, rate, and purchase products (Hajli, 2015). A new form of SCP that focuses on images sharing has emerged in 2006. Similar to most Web 2.0 applications, image-sharing SCPs focus on a specific segment of consumers, such as women, and on specific products, such as "soft goods" (e.g., fashion and lifestyle) (Turban, King, & Lang, 2011). Sharing pictures of products and lifestyle is the preponderant characteristic of these platforms. Examples of these SCPs include Pinterest, Instagram, and Polyvore in the US, Mogujie and Meilishuo in China.

Represented by Pinterest, image-sharing SCPs have obtained great success and have deeply influenced the consumption behavior of users. Although Pinterest has not reached the permeability of Facebook or Twitter, its users have higher purchasing power and consume about $170 per quarter on average. By contrast, the average quarterly consumptions of users on Facebook and Twitter are only $95 and $70, respectively (Marsden, 2011). According to a study by User Interface Engineering (2001), about 40% of the money spent online is attributed to impulse purchases. These evidences show that, compared to users of other social media, users of image-sharing SCPs are prone to online impulse buying. In other words, users consider consumption information received from image-sharing SCPs valuable and their online impulse buying behavior is

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crucially affected by this information (Trusov, Bucklin, & Pauwels, 2009). Therefore, it is important for academics and practitioners to understand the factors on image-sharing SCPs that facilitate the impulse buying behavior of consumers, which is exactly the focus of this study.

A number of studies have made important contributions to the understanding of online impulse buying behavior in traditional e-commerce websites (e.g., Parboteeah, Valacich, & Wells, 2009; Wells, Parboteeah, & Valacich, 2011; Luo, 2005; Madhavaram & Laverie, 2004). One notable example is the research of Parboteeah et al. (2009). They found that the provision of high-quality task-relevant (TR) and mood-relevant (MR) features of websites can significantly influence the cognitive and affective reactions of users in the website, which determine the likelihood and magnitude of their online impulse buying behavior. Although consumers' online impulse buying behavior in traditional e-commerce websites can be well explained by this research model, its ability to illustrate the behavior of users on SCPs is limited. As an integration of social media and online commerce activities, social relationship constructs are key factors that influence users' behavior; however, they were not included in any prior model on impulse buying. Responding to the call of Hajli (2014), new issues and new development of new theories are demanded in social commerce area. It is necessary to understand consumers' impulse buying behavior on image-sharing SCPs by adopting new theories.

Different from traditional e-commerce websites, image-sharing SCPs attract consumers mainly because they can foster users' closer relationships with various other users (Olbrich & Holsing, 2011). In addition to ordinary users, several image-sharing SCPs invite experts and celebrities to engage in social commerce activities and also offered various features to help ordinary users to identify and interact with them. Previous research on media and communication has proposed an intimate relationship between media users and media personalities (Rubin, Perse, & Powell, 1985; Auter, 1992; Grant, Guthrie, & Ball-Rokeach, 1991). For instance, audiences may feel a close relationship with the hosts of TV shopping program, and these relationships induced their impulse buying behavior via TV (Park & Lennon, 2006). Unlike real social relationships, this feeling of intimacy with media personalities may be seen as a one-sided relationship called the parasocial interaction (PSI) relationship. Similarly, users may also develop PSI relationships with other users on SCPs, especially with these celebrities and experts who they can hardly communicate with off-site (Ballantine & Martin, 2005; Labrecque, 2014). Therefore, it is necessary to examine the role of PSI relationship in triggering users' impulse buying behavior on image-sharing SCPs, though there are no existing studies exploring this issue. Hence, the focus of this study examines not only the impulse buying behavior but also the PSI relationship. To summarize, this study examines the following research questions:

(1) What factors encourage users to form PSI relationships with others on image-sharing SCPs? and
(2) Whether and how does the PSI relationship affect users' impulse buying behavior on image-sharing SCPs?

2. Theoretical background

The theoretical foundation of the current study has been derived from several sources, including media and communication, social commerce and social psychology. The conceptual model of the research is based on online impulse buying model of Parboteeah et al. (2009), and is further expanded by incorporating PSI theory (Auter & Palmgreen, 2000; Ballantine & Martin, 2005; Giles, 2002; Thorson & Rodgers, 2006). Specifically, the key constructs of the research model are from social commerce literatures (Olbrich & Holsing, 2011) and interpersonal interaction perspectives (Reinhard & Messner, 2009; Shen, Huang, Chu, & Liao, 2010).

2.1. Impulse buying

Impulse buying was first defined formally in the DuPont studies (1948–1965) as an unplanned purchase opposite actual purchases complying with intended shopping lists. Stern (1962) classified impulse buying into four distinct types, namely pure, reminder, suggestive, and planned impulse buying. This contribution is quite significant even nowadays, as most studies on impulse buying start with this classification (Beatty & Elizabeth Ferrell, 1998; Rook, 1987). Consistent with the definition of Stern's four types of impulse buying, most of users' buying behavior on SCPs can be viewed as impulse buying behavior. Browsing images of clothes on a SCP aimlessly and then decide to purchase a dress would be considered as a pure impulse buying behavior; seeing a picture of a cosmetic product on a SCP and realizing that he or she is running out of it and purchases it would be a reminder impulse buying; a suggestive impulse buying occurs when a user purchases a new shirt based on the recommendations of a SCP; finally, browsing pictures of products on a SCP with a shopping list but making purchases based on coupons or promotions would be a planned impulse buying. In current study, impulse buying is defined on the basis of its abundant definitions as "a purchase that is unplanned, the result of an exposure to a stimulus, and decided on the spot" (Piron, 1991, p. 512). Stimulus in the definition can be an actual product or the extrinsic attributes of the product and shopping context, such as the shopping environment, sales, and other buyers (Parboteeah et al., 2009). In the context of image-sharing SCPs, a plenty of pictures of products are impacting users' sense of vision, they are easily stimulated by the visual appeal and will buy products impulsively. Likewise, many interactive features are provided to users through which they can communicate with other users and even acquire

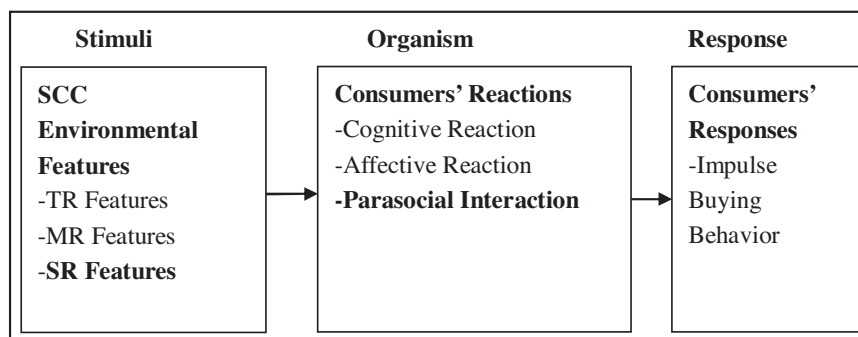| Stimuli	Organism	Response
SCC Environmental Features -TR Features -MR Features **-SR Features**	**Consumers' Reactions** -Cognitive Reaction -Affective Reaction **-Parasocial Interaction**	**Consumers' Responses** -Impulse Buying Behavior

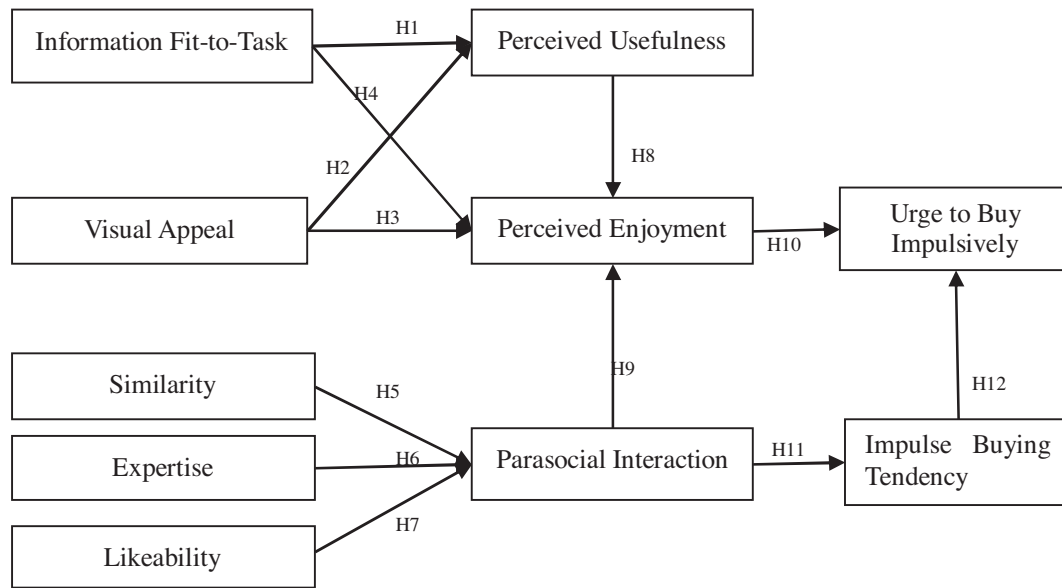**Fig. 1.** Theoretical framework of present study.

Fig. 2. Research model.

information from celebrities or experts; users on these SCPs may be easily stimulated by other users and make impulse buying decisions. Thus, the pictures of products, the features of the SCP, and the interactions with users on the SCPs can all be considered as stimuli to impulse buying in this research.

Given the importance of the stimulus as a motivation in the impulse buying process, environmental psychology theory is a logical theoretical framework for investigating the research questions in this study. The online impulse buying model of Parboteeah et al. (2009) was also based on environmental psychology theory, in which the effects of task-related (TR) and mood-related (MR) features of websites on users' online impulse buying behavior have been examined. Similarly, a Stimuli–Organism–Response (S–O–R) model will also be used as a framework for this study (as shown in Fig. 1).

2.2. Stimuli–Organism–Response model

2.2.1. Stimuli

Previous environmental psychology research classified the features of websites into TR and MR features, and regarded them as stimuli of consumers' reactions (Eroglu, Machleit, & Davis, 2001). TR features are defined as "all the site descriptors that facilitate and enable the consumer's shopping goal attainment" (Eroglu et al., 2001, p. 179–180), and concern the effective and efficient execution of consumer tasks (Babin, Darden, & Griffin, 1994). Compared to TR features, MR features are important in creating "an atmosphere that has the potential to make the shopping experience more pleasurable" (Eroglu et al., 2001, p. 180) and influence the fulfillment of shopping tasks indirectly (Babin et al., 1994). In the model of Parboteeah et al. (2009), information fit-to-task and visual appeal were studied as reflections of TR and MR features, respectively. In this study, TR and MR features of image-sharing SCPs are also examined and will be discussed in detail in the next section.

In addition to TR and MR features, the social relationship aspect is the essence of a SCP should be highlighted. Previous research on social commerce has indicated that the experience of consumers in the context of social media is different to that offline, as the consumers have social interactions with others (Hajli, 2015). Previous research on online users' behaviour also states that all users eventually interact with other users online (Bagozzi & Dholakia, 2002; Kozinets, 2000). Once a user interacts with others online, he

or she is more likely to become a recurring member in the community, and as time passes, he or she is more likely to become a source of information and social interaction (Kozinets, 2000). Thus, social–relevant (SR) features are defined in this study as the features related to the enhancement of interpersonal interaction and attraction among users in a SCP, and are incorporated into the current research study as environmental stimuli that affect the process of users' impulse buying behaviour.

2.2.2. Reactions

Previous environmental psychology research defined cognitive reaction as the "mental process occurring in an individual's mind when he or she interacts with the stimulus" (Eroglu et al., 2001) and is often a goal-oriented or utilitarian activity (Shang, Chen, & Shen, 2005). In the model of Parboteeah et al. (2009), perceived usefulness was studied as a cognitive reaction variable. By contrast, affective reactions are related to an individual's emotional response when he or she is stimulated by the environment (Sun and Zhang, 2006). In the model of Parboteeah et al. (2009), perceived enjoyment was investigated for capturing affective reactions to the environment.

As mentioned in previous section, the influences of social relationship aspect of SCPs on users' impulse buying behaviour are not well explained by the model of Parboteeah et al. (2009). Thus, in addition to perceived usefulness and perceived enjoyment, parasocial interaction (PSI), which has been derived from media and communication research, is introduced in this study to further explain users' affective/emotional reaction when interacting with a SCP. Considering that PSI is the focus of this research, which will be discussed in detail in a separate subsection.

2.2.3. Response

In line with the S–O–R model, responses represent the final outcomes and decisions of users based on cognitive, affective, or emotional reactions and include approach or avoidance behavior (Sherman, Mathur, & Smith, 1997). In the context of impulse buying, the response has two aspects, namely, the urge to buy implsively and the actual impluse buying behavior (Rook, 1987). Specifically, in the model of Parboteeah et al. (2009), the urge to buy impulsively is examined as the only individual response. Similarly, the focus response in the current study is the urge to buy implusively of users on SCPs.

2.3. Parasocial interaction

The concept of PSI was first proposed by Horton and Wohl (1956) to describe an individual's "illusion of face-to-face relationship with a media personality" (p. 188). In their research, they investigated the ways in which the interaction (e.g., TV program, show, and interview) between media users and media figures, such as audiences and actors, form this kind of one-sided relationship. Since then, many studies on media and communication have emerged to investigate PSI relationships in various contexts (Rubin et al., 1985; Auter, 1992; Grant et al., 1991; Rubin & Perse, 1987; Rubin & McHugh, 1987; Gleich, 1997). For example, the relationships that children form with their favorite television characters (e.g., Hoffner, 1996), the reactions of people who listen to talkback radio (e.g., Hofstetter & Gianos, 1997; Rubin & Step, 2000), and the relationships shoppers form with hosts of TV shopping channels (e.g., Stephens, Hill, & Bergman, 1996). PSI theory was also used to understand consumer behavior in online context (e.g., Labrecque, 2014; Ballantine & Martin, 2005; Powell, Richmond, & Williams, 2011; Thorson & Rodgers, 2006). Hoerner (1999) developed a PSI scale that measures the PSI potential of fictitious personalities on a company website. Ballantine and Martin (2005) adopted PSI theory to understand how inactive users of an online community can be influenced by opinions of other more active members of that community. Powell et al. (2011) also used PSI theory to investigate the relationship that a voter forms with political candidates in social networking sites.

In a sense, the viewer of a TV program "meets" with the performer by watching the program. As time goes on, these meetings may bring the viewer into the scenes of TV program and make the viewer form a feeling of intimacy with the performer as if they were close friends in real life. Thus, predictability about the performer is increased, the performer is reliable, and the viewer is loyal. These dynamics characterize the PSI relationship (Skumanich & Kintsfather, 1998). Similar to the interaction between a viewer and a performer, the user in a SCP "meets" with other users mainly through the various pictures they share. Over time, these "meetings" may also make the user feel close to other users. As the number of "meetings" increase, the imaginary closeness is enhanced, and the user deliberately maintains this online friendship (Rubin et al., 1985). Gradually, "meeting" other users on the SCP may become a routine and is planned for by the user, ultimately becoming an important part of the user's daily life. Thus, the user forms PSI relationships with other users on the SCP.

Moreover, PSI relationships are easily formed between ordinary media users and celebrities (e.g., Leets, 1999). Social media, such as Facebook and Twitter, have become indispensable tools for celebrities to create and strengthen relationships with consumers and fans alike (Ballantine & Martin, 2005). The existence of these social media has shattered the "fourth wall" and revealed an untapped potential to improve the communication dynamics between those in front of the camera and those watching from computers. In the context of SCPs, which are supported by Web 2.0 social media technologies, users can interact with celebrities and experts easily. Thus, the context of SCPs stimulates users' PSI relationships with other users, especially with celebrities and experters. Moreover, according to Horton and Wohl (1956), users who become immersed in PSI relationships may affirm their loyalty through various activities, and their behavior may be influenced. For example, these users may purchase products recommended by others.

In general, PSI in the context of SCP can be seen as an imagined friendship-like relationship that an individual forms with others which is based on felt affective ties and emotional attachment with others (Horton & Wohl, 1956). Thus, PSI is defined as a one-sided relationship a user forms with other users on a SCP, especially with celebrities or experts, which stems from imagined intimacy or illusion.

3. Research model and hypotheses

Fig. 2 depicts the research model of this study. It shows that urge to buy impulsively is determined by perceived enjoyment and impulse buying tendency. PSI exerts effect on impulse buying tendency. Visual appeal and information fit-to-task positively affect perceived usefulness and perceived enjoyment. Similarity, expertise, and likeability are three factors that determine PSI. In addition, the relationships between PSI, perceived enjoyment, and perceived usefulness are examined. The definitions and interrelationships of the constructs in this research model are addressed as follows.

3.1. Effects of TR and MR features on perceived usefulness and perceived enjoyment

Previous studies on social commerce summarized key features of image-sharing SCPs in various ways (Curty & Zhang, 2011; Olbrich & Holsing 2011). One notable example is the research of Olbrich and Holsing (2011), particular features of image-sharing SCPs are summarized and classified into three types. (1) Direct shopping features, such as a search field and filter mechanism by which users' search results can be narrowed down considerably. (2) Social shopping features, including recommendation lists, profiles, ratings, styles, and tags.[1] (3) Transactional features. Several SCPs provide links to participating online shops or transitional activities.

According to the classification of Olbrich and Holsing (2011), direct shopping features which enhance consumers' capacity to find the right products and to complete shopping tasks, can be attributed to TR features. Some social shopping features, such as styles, tags, and lists, which accompanied by many high-quality pictures not only help users to show their tastes and styles, but also increase their pleasantness with the SCPs, and can be attributed to MR features. Of course, these social shopping features can also help users to fulfill consumption tasks, for instance, consumers can quickly pick a gift for their friends via the list feature. The intention of classifying features of SCPs into TR and MR features is not to distinguish these features precisely, but to suggest that image-sharing SCPs have these features.

Following the model of Parboteeah et al. (2009), the environmental features (i.e., TR and MR features) of a website can elicit users' cognitive and affective reactions (i.e., perceived usefulness and perceived enjoyment). In their research, TR features are reflected by information fit-to-task which is "the extent to which information presented on a website is accurate and appropriate for the task at hand" (Loiacono, Watson, & Goodhue, 2007). Users assess TR features according to the usefulness they perceived in the accomplishment of a specific shopping task. Perceived usefulness is defined as "the extent to which the user believes that his or her shopping productivity will be enhanced" by using particular features of image-sharing SCP (Koufaris, 2002; Anandarajan, Igbaria, & Anakwe, 2002). Thus, the qualities of TR features are closely related to the usefulness of a website. In this study, information fit-to-task is defined as the extent to which information presented on a SCP is accurate and appropriate for shopping tasks (Loiacono et al., 2007).

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[1] Registered users of these SCPs can create various lists containing products for many reasons, such as wish lists for birthday, Christmas, or wedding presents. Style is a special popular sharing tool offered by image-sharing SCPs through which a user-generated collage or an assortment of products collected by a user is presented. All products of one style normally relate to a particular theme. Tagging is another essential element on these SCPs, which is used to note the content, classification, and characteristics of products, pictures, and the performances of users.

The more information users obtain from a SCP and the more tasks that are solved by the information, the more likely are users to view the SCP as a useful shopping platform.

Moreover, MR features of websites are also related to perceived usefulness even if the effect is weaker than that of TR features, and they regarded the effect of atmosphere on usefulness as the halo effect (Derbaix, Pham, & Lambkin, 1998)). That is, the first impression of a website will affect users' evaluation of the usefulness of a website. (Tractinsky, Katz, & Ikar, 2000). Visual appeal, which relates to the visual elements of a website (Van der Heijden, Verhagen, & Creemers, 2003), is identified as a reflection of MR features of websites in the research of Parboteeah et al. (2009). In this study, visual appeal is defined as the representational richness of a SCP, that is, visual elements, such as pictures, that enhance the overall look of the SCP (Van der Heijden et al., 2003). Users of these SCPs are more likely to pay more attention to the visual elements and value the information from visual elements. Thus, the qualities of visual features are also closely related to the users' perception of usefulness of a SCP. It is inferred that the more visual elements users perceived from the SCP and the more likely are users to view the SCP as a useful shopping platform.

Thus, the following hypotheses are proposed:

H1. Information fit-to-task positively affects users' perceived usefulness of a SCP.

H2. Visual appeal positively affects users' perceived usefulness of a SCP.

According to the model of Parboteeah et al. (2009), MR features can create a mood in which online users feel pleased or disgusted with the website (Eroglu et al., 2001), and these features are evaluated by users' perceptions of enjoyment or pleasure when browsing the website (Kempf, 1999). In this study, perceived enjoyment is defined as the extent to which the activity of using particular features of image-sharing SCP is perceived to be enjoyable (Davis, Bagozzi, & Warshaw, 1992; Wang, Yeh, & Liao, 2013). In the context of SCPs, a great number of high-quality pictures can bring users a visual treat, which makes interaction with the SCP exciting and enjoyable. The more attractive SCP visual elements are to a user, the more likely is the user to feel happy.

Moreover, TR features can also influence users' perceived enjoyment. Poorly designed TR features not only hinder users' interaction with a website but also reduce users' favorable impression of it and ultimately diminish their enjoyment. In the context of SCPs, these observations may be reflected by the timely accomplishment of users' online shopping tasks. For example, a user is searching for a new style of T-shirt on an SCP. However, she/he finds no information about this T-shirt on the SCP and thus may feel that the SCP is out of fashion and does not meet her/his need for information. The frustration breaks the mood of the user and ultimately leads her/him to join an alternative SCP. The user whose information needs can be adequately met on the SCP may perceive more enjoyment while browsing the SCP.

Thus, the following hypotheses are proposed:

H3. Visual appeal positively affects users' perceived enjoyment of a SCP.

H4. Information fit-to-task positively affects users' perceived enjoyment of a SCP.

3.2. Effects of SR features on PSI

A fundamental principle of interpersonal communication in social psychology literatures is "the exchange of messages most frequently occurs between a source and a receiver who are alike, similar and homophilous" (Rogers & Bhowmik, 1970, p. 526),

and interpersonal attraction and friendship are easily developed between similar persons (Berscheid, Snyder, & Omoto, 1989; Byrne, Clore, & Smeaton, 1986). Previous research has concluded a set of interpersonal interaction factors that determine interpersonal attractions and relationships, such as perceived similarity between individuals, expertise of other members, and familiarity among interacting members (Byrne et al., 1986; Hays, 1985; Kelman, 1961; Lascu & Zinkhan, 1999).

Similarity is defined in prior studies as "the degree to which people who interact are similar in beliefs, education, social status, and the like" (Rogers & Bhowmik, 1970, p.526). Prior media and communication research supports the importance of similarity in the development of PSI relationships (e.g., Byrne, 1961; Kendall & Yum, 1984; Prisbell & Andersen, 1980). Horton and Wohl (1956) compared PSI relationships with interpersonal relationships and concluded that both relationships develop over time and are based on similarity and uncertainty reduction. Many studies have examined the relationship between similarity and PSI. For example, Eyal and Rubin (2003) investigated the roles of viewer aggression, homophily (similarity), and identification in PSI relationships with TV characters. Turner (1993) examined the relationship between interpersonal homophily (similarity) and self-esteem with the development of PSI. These studies all support the positive effects of similarity on PSI. In the context of SCPs, several SR features help users to find members with similar interests, lifestyles, and shopping goals, for example, the features "*Other Who Also Like It*" and "*Similar Recommendation*". In this study, similarity is defined as the extent to which users in a SCC are perceived that they can find members with interests, styles, and tastes that match theirs. Users on a SCP are more likely to exchange information with others who have similar shopping goals, interests, and styles. More frequent exchange may promote users' formation of PSI relationships with others.

Expertise is another important factor in interpersonal interaction and attraction, and has been defined as "authoritativeness", "competence" (Whitehead, 1968), or "qualification" (Berlo, Lemert, & Mertz, 1969), all of which indicate the amount of knowledge of an individual about a domain. A source's perceived expertise positively affects the receiver's attitude change (Horai, Naccari, & Fatoullah, 1974; Ross, 1973). Kelman (1961) posited that an expert's opinions are more credible and reliable than a non-expert's. People tend to agree more with an expert and tend to change their attitudes according to an expert's opinion. Woodside and Davenport (1974) also found that consumers might be likely to purchase more according to experts' recommendations. In the context of SCPs, several features, such as "*Reputation System*", "*Recommendations from Stars*" *and* "*Top 10 members*" help users to find members with great expertise. In this study, expertise is defined as the extent to which users on a SCP are perceived that they can find members who post instructive consumption information and are professional in some aspects. Users are more likely to interact with other users who are knowledgeable about brands and products. The more frequent exchange may promote users' formation of PSI relationships among them.

Still another important factor in interpersonal interaction and attraction is likeability. Individuals automatically form a favorable first impression of a likeable person during an initial encounter and an unfavourable first impression of an unlikeable one (Fiske & Neuberg, 1990). Moreover, if the information source is perceived to possess desirable or positive traits, the receiver is more likely to be persuaded by information from the source (Mills & Aronson, 1965). Thus, an individual easily believes information from likeable persons and is more willing to interact with them. In the context of SCPs, several features, such as "*Number of Followers*", "*Number of Likes*" *and* "*Top 10 users*" help users identify members who are liked by most users. In this study, likeability is defined as the extent

to which users on a SCP are perceived that they can find members who are popular. The level of a user's likeability on an SCP inspires other users to engage in more community activities and enhances interaction among users. The more frequent exchange may promote users' formation of PSI relationships among them.

Thus, the following hypotheses are proposed:

H5. The similarity of other users on a SCP positively affects the formation of PSI relationships.

H6. The expertise of other users on a SCP positively affects the formation of PSI relationships.

H7. The likeability of other users on an SCP positively affects the formation of PSI relationships.

3.3. Relationships among perceived enjoyment, perceived usefulness, and PSI

The relationship between cognition and affection has been studied extensively (e.g., Shiv & Fedorikhin, 1999) and cognition has been found to affect affection positively (Holbrook & Batra, 1987). In line with the S–O–R model, an individual exposed to a stimulus processes and assesses information about the stimulus; the assessment of information determines the affective reactions of the individual to the stimulus (Berkowitz, 1993). Thus, affective reactions occur only after cognitive reactions to the environment are completed. Cognitive reactions to the environment can enhance or deter affective reactions.

In the context of SCPs, the more useful a SCP is perceived to be, the more enjoyable it is to use. If the SCP can effectively solve tasks related to online shopping, users may consider the usage of the SCP to be pleasing and may form an affective relationship with the SCP. Thus, the following hypothesis is proposed:

H8. The perceived usefulness of a SCP positively affects users' perceived enjoyment.

Prior research on PSI supports that enjoyment is a potential outcome of a parasocial experience (Klimmt, Hartmann, & Schramm, 2006) and people develop PSI relationships for entertainment purposes (Levy & Windahl, 1984; Palmgreen, Wenner, & Rayburn, 1980). For example, Hartmann and Klimmt, (2005) found that viewers' parasocial processing of a TV character was positively related to their enjoyment. Perse (1990) stated that PSI is a key factor in the enjoyment experienced by media users while watching news or TV programs. Media users with a high level of PSI relationships with media figures may be more emotionally involved in the interaction (i.e., watching the TV program) and thus may feel that the interaction is pleasing and enjoyable.

In the context of SCPs, users are likely to form PSI relationships with other users, especially celebrities or experts who cannot be contacted in real life. Through interaction on the SCP, users may feel intimate with other users as if they were real friends. Thus, users' emotional and affective needs are met. Users with strong PSI relationships with other users on a SCP perceive more enjoyment during interaction with the SCP. Thus, the following hypothesis is proposed:

H9. Users' PSI with other users on a SCP positively affects their perceived enjoyment in the SCP.

3.4. User's impulse buying behavior

Prior research on impulse buying have regarded the urge to buy impulsively as a reasonable proxy for impulsivity for two reasons (e.g., Dutta et al., 2003). First, the actual impulse buying behavior occurs only after the individual experiences the urge to buy impulsively (Rook, 1987). Although it is not necessary that all impulsive urges leads to actual purchases, the more urges are experienced, the more likely an impulse buying happened (Beatty & Elizabeth Ferrell, 1998). Second, some studies on impulse buying have attempted to measure actual impulse buying behavior by controlling the settings of survey, however, there is no result found in these studies (Madhavaram & Laverie, 2004; Koufaris, Kambil, & LaBarbera, 2002). It has been argued that asking respondents to recall their last impulse purchase or observing their actual behavior is both extremely problematic (Luo, 2005). In fact, several researchers have found that the urge to buy impulsively is a stronger measure of impulsivity than the actual impulsive behavior (McGoldrick, Betts, & Keeling, 1999; Dutta et al., 2003; Beatty & Elizabeth Ferrell, 1998). Thus, following the model of Parboteeah et al. (2009), in the current study, the urge to buy impulsively rather than the actual impulse buying behavior is regarded as the response of users on SCPs. The urge to buy impulsively is defined as "the state of desire that is experienced upon encountering an object in the environment" (Beatty & Elizabeth Ferrell, 1998, p. 172). That is to say, an individual experiences a sudden and spontaneous urge to buy the products when exposed to the stimulus, and this urge is resulted from the state of mind that created by the shopping environment (Rook, 1987).

Impulse buying tendency has been defined as "both the tendencies (1) to experience spontaneous and sudden urges to make on-the-spot purchases and (2) to act on these felt urges with little deliberation or evaluation of consequence" (Beatty & Elizabeth Ferrell, 1998, p. 174). Although it has not been examined in the model of Parboteeah et al. (2009), impulse buying tendency has received some attention in the extant literature both in the traditional and online shopping contexts (e.g., Zhang, Prybutok, & Koh, 2006; Wells et al., 2011). For deeper insights into impulse buying, research in psychology has called for a need to consider both an individual's inherent traits and state of mind (Eysenck, 1983). Thus, impulse buying tendency is also taken into account in current research model as an individual's inherent propensity to engage in such behavior. Although personality trait is relatively stable (Hertzog & Nesselroade, 1987), impulse buying tendency refers to a surface trait, as it represents an enduring disposition to act in the specific online shopping context (Sun & Wu, 2011). From Mowen's 3 M model (Mowen, Park, & Zablah, 2007), there are four hierarchical levels of traits: element traits, compound traits, situational traits and surface traits. Surface traits represent the behavioral dispositions in specific contexts. They result from the effect of context-specific environment and other three types of traits (Sun & Wu, 2011). In the current study, we adopted the S–O–R model based on the environmental psychology theory and focused on the features of SCPs in predicting urge to buy behavior. Thus, we connected PSI with impulse buying tendency to explore the underestimated social aspects of SCP contexts. Moreover, impulse buying tendency here in the context of SCPs was viewed as a situation-specific attributes that could be influenced by the interaction within the SCPs. For an instance, certain individuals may have high impulsiveness only when shopping with friends or received recommendations.

3.4.1. Effect of perceived enjoyment on urge to buy impulsively

The effect of individual's affective reactions on his or her responses can be explained by flow research, which indicated that a user's exploratory behavior could be stimulated as intrinsic enjoyment increased (Ghani & Deshpande, 1994). In offline context, consumers in a good mood are more likely to buy on impulse (Rook & Gardner, 1993; Donovan & Rossiter, 1982). In an online context, if online consumers enjoy their shopping experience, they might engage in more exploratory browsing in the web, which result in more unplanned purchases (Beatty & Elizabeth Ferrell, 1998). Adelaar, Chang, Lancendorfer, Lee, & Morimoto (2003) also found the positive relationship between

individual's emotional response and impulse buying behavior (Adelaar et al., 2003). Therefore, we posit that in the context of SCPs, users who feel that usage of a SCP is pleasing are more likely to buy items on impulse. Thus, the following hypothesis is proposed:

H10. Users' perceived enjoyment of a SCP positively affects their urge to buy impulsively on the SCP.

3.4.2. Effect of PSI on impulse buying tendency

The effect of PSI on consumer behavior has been well studied within offline context. Intensive PSI may influence impulse buying in the TV shopping context (Park & Lennon, 2006). Stephens et al. (1996) found that hosts' conversational techniques and personality encourage viewers to form and maintain PSI relationships with them, and the PSI relationships persuade a consumer to purchase items on impulse. Stasi (1988) also found that items on TV shopping programs are displayed and described by the host; thus, the host plays an important role in displaying items and arousing the interest of viewers. Viewers who develop strong relationships with TV hosts are more likely to be persuaded by them and to purchase more products even though unplanned.

In social media research, PSI was also used to study user behavior in relation to brand attitudes and purchase intentions (Ngai, Tao, & Moon, 2015). We propose that the effect of PSI on consumers' impulse buying behavior is strong because this interaction can easily be boosted in the context of SCPs compared with the TV shopping context. As mentioned above, the significant characteristic of SCPs is to provide users with many pictures of products from other users and to help users to interact with various other users. Thus, communication among users is enhanced and users are encouraged to exchange consumption information as if they were friends in real life. Moreover, SCPs offer opportunities for users to communicate with celebrities and experts. Through pictures and recommendations from experts and celebrities, users can intimately know their opinions and lifestyles. Compared with users of traditional media channels, where they can see celebrities and experts only on screen or on paper, those of SCPs can effectively interact with them. SCPs help users create an imagined intimacy with celebrities and thus form PSI relationships with them. In general, users may imitate other users' style and follow their recommendations under the PSI relationship and may ultimately purchase on impulse. Thus, the following hypothesis is proposed:

H11. Users' PSI with others positively affects their impulse buying tendency on an SCP.

3.4.3. Effect of impulse buying tendency on urge to buy impulsively

The relationship between impulse buying tendency and urge to buy impulsively has received attention in both offline and online contexts (e.g., Beatty & Elizabeth Ferrell, 1998; Adelaar et al., 2003; Zhang et al., 2006; Zhang et al., 2007Zhang, Prybutok, & Strutton, 2007; Wells et al., 2011). In an offline-shopping context, Beatty & Elizabeth Ferrell (1998) proposed that shopping enjoyment and impulse buying tendency are two exogenous individual different variables that influencing the urge to buy impulsively, and they found that individuals who have higher propensity to impulsiveness scale are more likely to experience increased urges. Similarly, in an online context, a link between impulsiveness and impulse buying intent has been proposed in the research of Adelaar et al. (2003), although this relationship has not been examined empirically. Moreover, subsequent research from Wells et al. (2011) has confirmed the positive effect of impulse buying tendency on the urge to buy online impulsively. Consistent with these findings, we posit that a similar relationship should exist between impulse buy-

Table 1
Demographics of Respondents.

Profile of Respondents (n = 248)		Frequency	Percentage
Gender	Male	25	10.1
	Female	223	89.9
Age	<= 25	75	30.2
	26–35	156	62.9
	36–45	16	6.5
	>= 45	1	0.4
Education background	High school or below	5	2.0
	Two-year College	40	16.1
	Bachelor	182	73.4
	Master or above	21	8.5
Internet experience	<= 2 years	1	0.4
	3–4 years	15	6.0
	5–6 years	67	27.0
	7–8 years	66	26.6
	>8 years	99	39.9
Income (RMB/Month)	<= 1000	14	5.6
	1001–2000	16	6.5
	2001–4000	72	29.0
	4001–8000	117	47.2
	>= 8000	29	11.7

ing tendency and the urge to buy impulsively on a SCPs context. Thus, the following hypothesis is proposed:

H12. Users' impulse buying tendency positively affects their urge to buy impulsively on an SCP.

4. Research method

4.1. Data collection

This study conducted an online survey and posted a self-administered questionnaire on *Mogujie.com*, one of the largest and most popular image-sharing SCPs in China. By the end of Oct. 2012, the number of registered users on *Mogujie.com* has exceeded thirty million, and the unique visiting for each day has reached three million. It has become the most influential online shopping guide in China. *Mogujie.com* appears as a typical SCP that is suitable for examining the research model of this study. The screenshot of *Mogujie.com* is attached at the end of the paper (See Appendix A).

An invitation message with a link to the online questionnaire was posted in affiliated discussion forums of Mogujie.com for two months. To encourage participation, 10RMB (i.e., around 1 dollar and 50 cents) was provided to valid respondents. Screening questions are used to ensure that all the respondents are active users of Mogujie.com (we have examined their interactive actives with other users through checking their ID of Mogujie.com. Users who have not shared information and have not interacted with other users are not included in this study). For example, we set up the question like "How many users do you like or follow on Mogujie.com"? We deleted the respondent if their answer is zero. Among the 998 users who were interested in this survey, 248 of them completed the online questionnaire with valid responses. Among the 248 respondents, 89.9% were female. Over 93.1% of the participants were below 35 years old. Over 73.4% had incepted a bachelor's degree or a higher level of education. Most of them had over five year Internet experience. The income of the participants was evenly distributed from RMB4000 to RMB8000. Table 1 summarizes the demographic characteristics of the respondents.

Non-response error estimation was conducted through the comparison of the early with the late responses. There is no significant difference found in the composition of the respondents. Therefore, non-response bias may not be a problem in this study.

Table 2
Descriptive statistics for research model.

Construct	Item	Loadings	Mean	St.Dev	Minimum	Maximum
Visual appeal CR = 0.87, AVE = 0.69	VAP1	0.84	6.06	0.76	4.00	7.00
	VAP2	0.85	6.08	0.76	4.00	7.00
	VAP3	0.79	6.02	0.84	1.00	7.00
Similarity CR = 0.87, AVE = 0.69	SIM1	0.79	5.71	0.87	2.00	7.00
	SIM2	0.86	5.89	0.84	2.00	7.00
	SIM3	0.84	5.76	0.91	2.00	7.00
Expertise CR = 0.88, AVE = 0.71	EXP1	0.85	5.77	0.90	2.00	7.00
	EXP2	0.87	5.45	1.04	2.00	7.00
	EXP3	0.81	5.83	1.00	2.00	7.00
Likeability CR = 0.87, AVE = 0.70	LIK1	0.85	5.74	0.89	2.00	7.00
	LIK2	0.87	5.53	0.89	2.00	7.00
	LIK3	0.78	5.90	0.88	2.00	7.00
Parasocial interaction CR = 0.91, AVE = 0.62	PSI1	0.76	5.48	0.95	2.00	5.90
	PSI2	0.85	5.29	1.05	2.00	5.48
	PSI3	0.80	5.43	0.95	3.00	7.00
	PSI4	0.80	5.47	0.98	2.00	7.00
	PSI5	0.78	5.32	1.36	1.00	7.00
	PSI6	0.73	5.31	1.00	1.00	7.00
Impulse buying Tendency CR = 0.91, AVE = 0.72	IBT1	0.85	5.18	1.20	1.00	7.00
	IBT2	0.91	4.42	1.37	1.00	7.00
	IBT3	0.88	4.46	1.53	1.00	7.00
	IBT4	0.74	4.38	1.39	1.00	7.00
Perceived usefulness CR = 0.91, AVE = 0.78	USE1	0.87	5.70	0.86	3.00	7.00
	USE2	0.87	5.70	0.96	2.00	7.00
	USE3	0.91	5.66	0.88	3.00	7.00
Perceived enjoyment CR = 0.92, AVE = 0.80	ENJ1	0.89	6.10	0.79	4.00	7.00
	ENJ2	0.91	5.86	0.86	4.00	7.00
	ENJ3	0.89	5.97	0.89	3.00	7.00
Information Fit-to-Task CR = 0.90, AVE = 0.82	INFT1	0.90	5.62	0.77	3.00	7.00
	INFT2	0.91	5.78	0.76	4.00	7.00
Urge to buy impulsively CR = 0.94, AVE = 0.83	UTB1	0.90	5.23	1.08	2.00	7.00
	UTB2	0.92	5.07	1.19	1.00	7.00
	UTB3	0.91	5.09	1.27	1.00	7.00

Note: CR = Composite reliability, AVE = Average variance extracted

4.2. Measures

All the constructs in the research model were measured using multiple-item scales validated from prior studies, with minor modifications to ensure contextual consistency. Appendix B shows the measures used in this study. The items used seven-point Likert scale from "1 = strongly disagree" to "7 = strongly agree". Since the survey was administered in China, we used the translation-back-translation approach to ensure the consistency of the original English instrument and the Chinese instrument.

4.3. Control variables

The online survey without random assignments of participants may increase the likelihood of any systematic individual differences, which would influence the results. Therefore, this study included some general control variables that measured users' characteristics on image-sharing SCPs, such as gender, age, education, and income. Furthermore, computer experience was also considered.

5. Data analysis and results

This study employed Smart PLS 2.0 to analyze the research model. Compared with covariance-based structural equation modeling (SEM) tools, PLS does not require normal distribution (Chin, 1998), and it is the preferred method when the research objective is theory development and prediction (Hair, Ringle, & Sarstedt, 2011). Due to the data sample and the non-normality of the data in the current study and the predicting nature of this study, we chose the PLS method other than SEM methods. The research model was validated by following the two-step analytical procedures: the measurement model and the structural model (Hair, Anderson, Tatham, & Black, 1998).

5.1. Measurement model

The measurement model was assessed to ensure the appropriate use of psychological instruments, including reliability, convergent validity and discriminant validity.

Reliability was assessed by assessing Cronbach's Alpha, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 1998). The three criteria were used: (1) Cronbach's Alpha is higher than 0.70; (2) composite reliability is greater than 0.70; (3) and AVE is no less than 0.50 (Chin, 1998). The Cronbach's Alpha and CR of all the constructs were above 0.7; the AVE of all the constructs was above 0.6. These results suggest that all the constructs have good reliability (Fornell & Larcker, 1981).

Table 3
Correlations between constructs.

Correlations between Constructs										
	EXP	IBT	INFT	LIK	PSI	ENJ	USE	SIM	VAP	UTB
EXP	0.84									
IBT	0.30	0.85								
INFT	0.43	0.36	0.90							
LIK	0.57	0.29	0.52	0.84						
PSI	0.61	0.44	0.60	0.61	0.79					
EJN	0.45	0.36	0.54	0.51	0.51	0.90				
USE	0.53	0.52	0.54	0.49	0.63	0.57	0.88			
SIM	0.54	0.23	0.45	0.53	0.52	0.46	0.47	0.83		
VAP	0.42	0.18	0.39	0.36	0.40	0.43	0.47	0.54	0.83	
UTB	0.18	0.65	0.25	0.22	0.26	0.30	0.35	0.16	0.18	0.91

Note: 1. The shaded numbers in the diagonal row are square roots of the AVE.
2. INFT = Information fit to task; VAP = Visual Appeal; SIM = Similarity; EXP = Expertise; LIK = Likeability; PSI = Parasocial Interaction; USE = Perceived Usefulness; ENJ = Perceived Enjoyment; IBT = Impulse Buying Tendency; UTB = Urge to Buy Impulsively.

Convergent validity indicates to which extent the items of constructs of interest that are theoretically related are indeed related empirically. All the constructs in the current study are reflective constructs. Thus, convergent validity was examined by testing whether the item loadings on the corresponding constructs were relatively high enough in addition to examining composite reliability and AVE. Table 2 reports the item loadings of constructs.

Discriminant validity indicates the degree to which measure of one construct is not the reflection of other constructs. It could be verified by the low correlations between the measure of one construct and the measures of the other constructs. Evidence about discriminant validity is that whether the square root of the AVE is greater than the correlations between it and all the other constructs (Fornell & Larcker, 1981). Table 3 shows that the square roots of the AVE for each construct is higher than the correlations between each construct and each of the other constructs, suggesting that these constructs have good discriminant validity.

Furthermore, as all of the answers were collected from one questionnaire by the same respondents, a threat of common method variance may exist. The method suggested by Liang et al. (2007) were both adopted to test whether common method bias (CMB) was a problem for this study. The analysis revealed that CMB was not a major threat to the study (See Appendix C).

5.2. Structural model

Fig. 3 presents the results of our research model with overall explanatory power, estimated path coefficients (all significant paths are indicated with asterisks) and associated *t*-values of each path in the research model. Path significance tests were performed using the bootstrap re-sampling procedure.

As shown in Fig. 3, the results found that the exogenous variables (Information fit to task; Visual Appeal; Similarity; Expertise; Likeability) in current research model explain the variances in endogenous variables (Parasocial interaction; Perceived Usefulness; Perceived Enjoyment; Impulsive buying tendency; Urge to buy impulsively) well. Specifically, the integrated model accounted for 43% of the variance in urge to buy impulsively. All the hypotheses were supported significantly. The results also demonstrated that all the path coefficients were statistically significant as hypothesized. Information fit-to-task and visual appeal had significant impacts on perceived usefulness with path coefficients of 0.43 and 0.31, respectively (H1 and H2 were supported). Information fit-to-task and visual appeal exert significant effects on perceived enjoyment with path coefficients of 0.15 and 0.26, respectively (H3 and H4 were supported). Similarity, expertise and likeability had positive influence on PSI with path coefficients of 0.17, 0.32 and 0.34 respectively (H5–H7 were supported). Both perceived usefulness and PSI exhibited strong effects on perceived enjoyment (H8

and H9 were supported). Perceived enjoyment had a significant effect on urge to buy impulsively with path coefficient of 0.08. In addition, PSI was found to be exerting an impact on impulse buying tendency. All control variables were found to be insignificant, such as age ($\beta = -0.03$, $p > 0.1$), gender ($\beta = 0.06$, $p > 0.1$), education ($\beta = 0.01$, $p > 0.1$), income ($\beta = 0.03$, $p > 0.1$), and computer experience ($\beta = -0.06$, $p > 0.1$).

6. Discussions and conclusions

6.1. General discussion

The research model adopts five key theoretical perspectives: the S-O-R model, PSI theory, interpersonal interaction perspectives, social commerce and website quality literature. Building on online impulse buying model of Parboteeah et al. (2009), information fit-to task, visual appeal, perceived usefulness and perceived enjoyment are identified as important drivers of urge to buy impulsively. More specifically, the results of the current study indicate that information fit-to task and visual appeal are two of the key determinants of perceived usefulness and perceived enjoyment (H1–H4 were supported). The relationship between perceived usefulness and perceived enjoyment is also verified in this study (H8 was supported). Moreover, perceived enjoyment is found to be significantly influence urge to buy impulsively (H10 was supported). These results are consistent with prior study of online impulse buying (Parboteeah et al., 2009). That is to say, an image-sharing SCP can increase consumers' impulsive behavior when positive cognitive reactions (i.e., perceived usefulness) and affective reactions (i.e., perceived enjoyment) are simultaneously increased through the positive impacts of TR (i.e., information-fit-to-task) and MR features (i.e., visual appeal).

Employing PSI theory and interpersonal interaction perspectives, this study extends prior study on online impulse buying through adding the aspect of PSI. To determine PSI, three major types of social-related factors are identified: similarity, expertise and likability. The results of the PLS analysis show that PSI is determined by these three social-related factors (H5–H7 were supported). That is to say, users on a SCP are more likely to exchange information with, interact with and even promote the formation of PSI relationships among those similar, likable or knowledgeable other users. This study also indicates that PSI is associated with perceived enjoyment (H9 was supported). This might be explained by the fact that users may feel intimate with other users as if they were real friends. Users are likely to form PSI relationships on image-sharing SCPs with other users who are not contacted in real life. Through interaction on the SCPs, they will feel as if they were real friends. Thus, users' emotional and affective needs are met. In other words, the pleasant feeling of the image-sharing SCPs will
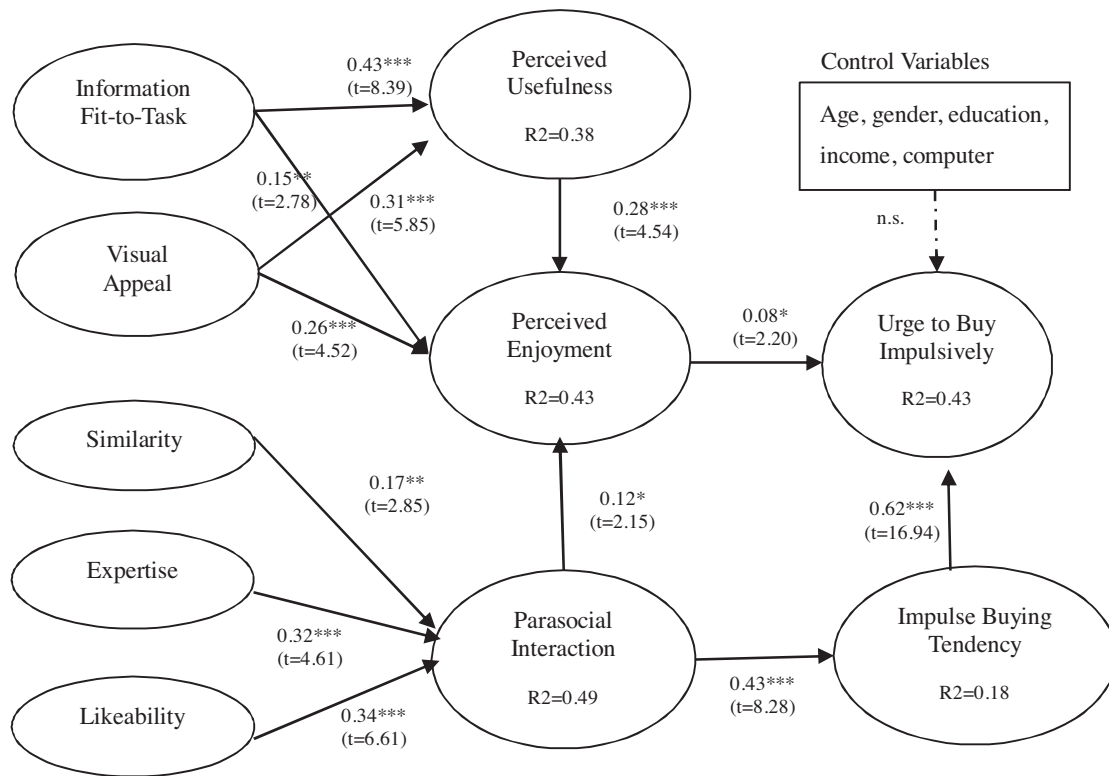
Fig. 3. PLS Results for research model.

be increased when there is strong PSI relationship formed among users.

The positive relationship between impulse buying tendency and urge to buy impulsively was demonstrated in prior studies (Wells et al., 2011). This study shows a consistent result confirming this positive relationship (H12 was supported). That is to say, individuals who have a higher propensity to impulsiveness scale are more likely to experience increased urges. Although personality trait is relatively stable (Hertzog & Nesselroade, 1987), impulse buying tendency here in the context of SCPs was viewed as a situation-specific attributes that could be influenced by SCPs environment (Mowen et al., 2007; Sun & Wu, 2011). Unlike rational decision-making, trait impulse tendency is highly correlated with emotional arousal (Sun & Wu, 2011). Specifically, this study also shows that impulse buying tendency is positively affected by PSI (H11 was supported). Thus, the provision of PSI relationships on SCPs is essential for users to form and strengthen buying impulsiveness and ultimately influence impulsive buying behavior.

All these findings provide important insights for both researchers and SCPs designers. In the next section, the theoretical and practical implications are further examined.

6.2. Implications for researchers

Generally, this study enriches existing literature on social commerce and impulse buying in several ways. First, the study validates a model of online impulse buying that is grounded not only in IS theory but also in media and psychology literature and thus sheds light on such behavior. More specifically, this study extends the previous research on impulsive buying by examining this behavior on an image-sharing SCP context. As a relatively new form of e-commerce, social commerce received little attention from researchers until recently. The limited research on social commerce has investigated its impact and marketing influence by inferring objective data, and few studies have examined the role of SCP

features in user behavior via empirical testing. Moreover, popular image-sharing SCPs with high levels of visual appeal and interaction between users facilitate consumers to buy online impulsively. Consumers' impulse buying behavior on such SCPs is one yet-to-be resolved question in social commerce research. Our research developed a conceptual model to fill this research gap. Although a prior study on online impulse buying from Parboteeah et al. (2009) verified the influence of perceived usefulness and perceived enjoyment on the urge to buy impulsively, there is a lack of investigation of PSI as an important variable on SCPs, which is further examined in the current study.

Second, past studies on impulse buying have focused either on examining difference of individual variables or on factors external to individuals (e.g., characteristics of the environment). Social relationships have not been widely studied in online impulse buying behavior (Mattila & Wirtz, 2008). In addition to confirming established relationships, this study identifies new correlates of urge to buy impulsively behavior: PSI relationship. PSI theory, which was derived from media and communication literature, is introduced to online impulse buying research and is confirmed to play an important role in motivating consumers' impulse buying tendency. This study extends a previous application of the S-O-R model in impulse buying research (Parboteeah et al., 2009), in which only TR and MR features are examined, by conducting an empirical investigation of the effects of TR, MR, and SR features on online consumers' behavior. The current study contributes the understanding of PSI by examining three SR features that determines PSI: similarity, expertise and likeability.

Third, the influence of impulsive buying tendency is highlighted in the current study. In previous studies, the relationship between impulsiveness and urge to buy impulsively was supported (Wells et al., 2011). Yet, the role of PSI on SCPs is an important consideration and has received no attention in prior studies. In particular, trait impulsiveness in the current study works as the bridge that connects PSI and urge to buy impulsively behavior. More specif-

ically, in the context of SCPs where are full of images, users are likely to form PSI relationships with other users. That is because PSI in the online context can be seen as an imagined friendship-like relationship an individual formed with others and is based on felt affective ties and emotional attachment with others (Horton and Wohl, 1956). Prior research has verified the relationship between PSI and impulsive buying tendency in TV shopping context (Park & Lennon, 2006). This research bulids on this past study by examing the role of PSI on impulsive buying tendency on SCPs, making a meaningful contribution to the research of impluse buying on SCPs. In other words, PSI as a relatively unique factor on SCPs, is examined in this study and found to be an important driver of impulsive buying tendency and ultimately leading to urge to buy impulsively behavior.

6.3. Implications for practitioners

The results of this study provide important guidelines for designers of SCPs and marketers of brands and companies. In general, more effective features should be designed to enhance consumers' cognitive, affective, and emotional reactions to the SCP. First of all, users' positive affective and emotional reactions to SCPs should be booted by enhancing the quality of MR and SR features. As discussed in this study, the key determinant of users' online purchase decision making is changed by the emergence of image-sharing SSCs. These SCPs offer users many beautiful pictures of products from friends, other users, and celebrities so that they can enjoy a more intuitive shopping experience. Compared with shopping on general SCPs, such as Amazon and Facebook, shopping according to pictures is more convenient and enjoyable for users. Designers of SCPs should comply with this change and provide high-quality MR features to visually appeal to users. Some features of SCPs, such as styles and lists, may play important roles in creating an enjoyable shopping environment and in promoting visual appeal. In addition, encouraging a user's PSI relationship with other users on the SCP effectively promotes impulse buying tendency. Designers of SCPs should offer interactive features that enable users to feel that communication with other users is like communicating with friends. In addition, designers of SCPs should enhance the quality of TR features. According to the results of this study, a major motivation behind users' intention to engage in various social commerce activities on an SCP is to complete their shopping-related tasks. Designers of SCPs should provide high-quality TR features to help users obtain useful user-generated comments (UGC), which are a fundamental part of the business model of SCPs. Designers of SCPs should also offer incentives to encourage high-quality information sharing on the SCP. Such rewards include monetary (e.g., coupons and bonus points) and non-monetary incentives (e.g., grades and reputation).

The results of this study suggest useful insights for marketers of brands and companies to promote or sell products via image-sharing SCPs. With the popularity of social commerce and the rapid development of various SCPs, marketers should formulate corresponding strategies to adapt to fierce competition and to gain market share. The fundamental philosophy of social commerce in relation to marketers lies in how to understand consumers thoroughly on the basis of their opinions on SCPs, how to respond to these opinions, and how to stimulate their desire to buy. First, before carrying out social commerce activities, marketers must first rethink the online positioning of their products. Do the products have elements that can be visualized? Are these products suitable for marketing on image-sharing SCPs? What theme or setting will the product be placed in? These questions require careful consideration. Marketers can also analyze the opinions and comments of users about similar products on the SCP and better understand

users' interests and preferences. Second, SCP is a place where consumers show their interests and preferences about consumption, users engage in social commerce activities primarily because they enjoy finding interesting products. Thus, a "hard sell" approach does not work on the SCP. In other words, marketers of companies should show users the characteristics and unique features of their products to stimulate users' interest and curiosity. Third, marketers of companies or brands should place sharing icons, such as "Pin it" or "Tweet", beside their products so that consumers who are interested and have intentions of purchasing can share them on various SCPs. In addition to sharing icons, marketers should add tags to products. Last, the emergence of image-sharing SCPs has changed consumers' purchase behavior. More consumers are likely to purchase products because of their visual appeal. The impact of pictures is far beyond that of textual descriptions in a brand website. Although the cost is high, marketers of companies should build a picture gallery on SCPs.

6.4. Limitations and future research directions

This study has several limitations, all of which offer opportunities for further research. First, this study is of a cross-sectional nature. The use of cross-sectional data to test the causality of relationships in the research model is a limitation because no definite conclusion can be drawn. Longitudinal studies and experiments can provide a strong inference of causality and improve understanding of the directions of causality (Dillon & Goldstein, 1984). However, given the limited time and resources, cross-sectional studies are used as exploratory vehicles to determine relationships of interest. Due to the limitation of a cross-sectional study, actual behavior was not assessed. Future research using these theoretical models should adopt a longitudinal approach to investigate the directions of causality and the effect of impulse buying tendency on impulse buying behavior. Second, a bias in data collection might have been introduced by the omission of important variables. Various factors affect individuals' impulse buying behavior. For example, Park & Lennon (2006) examined the effects of duration of TV shopping program browsing on impulse buying tendency in a retail setting. In addition to ambience and design characteristics, individual factors, such as hedonic motivations are found to affect impulse buying behavior. Thus, additional constructs should be incorporated into future research models to enhance explanatory power. Third, the current study did not examine the relationship between PSI and urge to buy impulsively well. Since the existing studies of PSI only discussed its influence on impulse buying tendency other than the urge to buy impulsively and the aim of this research, this study did not further examine the mechanism beneath these three constructs. Thus, future studies may continue to deep address the unsolved puzzle among these factors. Furthermore, the relatively high correlation between impulse buying tendencies and urge to buy impulsively encourage future study to develop more on their instruments. Last but not least, the results may have limited generalizability because the subjects of this research are users from a single region. The developed research model and research conclusions should be carefully applied to other cultural contexts. Future research may consider extending this study by sampling different platforms and different cultural backgrounds.

Acknowledgements

Appendix A.

The screenshot of Mogujie.com.

Appendix B.

Measuring items for research model.

Appendix A. Measuring Items for Research Model

Information Fit-to-Task(Modified from Loiacono et al., 2007)

| INFT1 | Mogujie.com has adequately meets my information needs |
| INFT2 | The information on Mogujie.com is pretty much what I need to carry out my tasks. |

Visual Appeal (Modified from Loiacono et al., 2007)

VAP1	Mogujie.com shows me a plenty of pictures, which are visually pleasing
VAP2	Mogujie.com shows me a plenty of pictures, which are visually appealing.
VAP3	Mogujie.com provides me a plenty of pictures, which displays visually pleasing. Design

Perceived Usefulness (Modified from Davis, Bagozzi, & Warshaw, 1989)

USE1	Using Mogujie.com can improve my shopping performance.
USE2	Using Mogujie.com can increase my shopping productivity.
USE3	Using Mogujie.com can increase my shopping effectiveness.

Perceived Enjoyment (Modified from Chang & Cheung, 2001)

ENJ1	My interaction with Mogujie.com was disgusting /enjoyable.
ENJ2	My interaction with Mogujie.com was dull/ exciting.
ENJ3	My interaction with Mogujie.com was unpleasant /pleasant.

Similarity (Modified from Shen et al., 2010)

SIM1	Mogujie.com has features by which I find members with whom share similar values.
SIM2	Mogujie.com has features by which I recognize members with whom share similar interests
SIM3	Mogujie.com has features by which I identify members with whom share similar preferences.

Expertise (Modified from Shen et al., 2010)

| EXP1 | Mogujie.com has features by which I find members who are very knowledgeable about brands and products. |

| EXP2 | Mogujie.com has features by which I recognize members who are experts on brands and products |
| EXP3 | Mogujie.com has features by which I identify members who are highly experienced in picking brands and products. |

Likeability (Modified from Reinhard & Messner, 2009)

LIK1	Mogujie.com has features by which I find members who are likeable.
LIK2	Mogujie.com has features by which I recognize members who are nice.
LIK3	Mogujie.com has features by which I identify members who are popular.

Parasocial Interaction (Modified from Thorson & Rodgers, 2006)

PSI1	Mogujie.com shows me what other members are like, especially some celebrities I'm interested in.
PSI2	The interaction with other members on Mogujie.com makes me feel comfortable, especially with some celebrities I hardly contact in real life, as if I were with friends.
PSI3	I found myself comparing my opinion about products and brands with what other members said, especially with some celebrities' opinions.
PSI4	I can trust the information I get from other members on Mogujie.com, especially from celebrities I'm interested in.
PSI5	I would tell my friends about members on Mogujie.com
PSI6	When some members on Mogujie.com post information, they seemed to understand the kinds of things I want to know.

Impulse Buying Tendency (Modified from Rook & Fisher, 1995)

IBT1	While browsing on Mogujie.com, I often buy things spontaneously.
IBT2	As I browse on Mogujie.com, I often buy things online without thinking.
IBT3	"I see it, I buy it" describes the way I buy things online via Mogujie.com.
IBT4	Browsing mogujie.com, sometimes I am a bit reckless about what I buy.

Urge to Buy Impulsively (Modified from Parboteeah et al., 2009)

UBI1	As I browsed on Mogujie.com, I had the urge to purchase items other than or in addition to my specific shopping goal.
UBI2	Browsing on Mogujie.com, I had a desire to buy items that did not pertain to my specific shopping goal.
UBI3	While browsing on Mogujie.com, I had the inclination to purchase items outside my specific shopping goal.

Appendix C.

Common method bias analysis.

Construct	Indicator	Substantive factor loading (R1)	$R1^2$	Method factor loading (R2)	$R2^2$
Visual Appeal	VAP1	0.819[**]	0.671	0.038	0.001
	VAP2	0.853[**]	0.728	−0.011	0.000
	VAP3	0.811[**]	0.658	−0.028	0.001
Similarity	SIM1	0.818[**]	0.669	−0.031	0.001
	SIM2	0.891[**]	0.794	−0.032	0.001
	SIM3	0.787[**]	0.619	0.062	0.004
Expertise	EXP1	0.911[**]	0.83	−0.072	0.005
	EXP2	0.818[**]	0.669	0.062	0.004
	EXP3	0.804[**]	0.646	0.008	0.000
Likeability	LIK1	0.872[**]	0.76	−0.033	0.001
	LIK2	0.746[**]	0.557	0.143[**]	0.02
	LIK3	0.900[**]	0.81	−0.120[*]	0.014
Parasocial Interaction	PSI1	0.768[**]	0.59	−0.004	0.000
	PSI2	0.925[**]	0.856	−0.087	0.008
	PSI3	0.753[**]	0.567	0.051	0.003
	PSI4	0.891[**]	0.794	−0.096	0.009
	PSI5	0.658[**]	0.433	0.135	0.018
	PSI6	0.718[**]	0.516	0.011	0.000
Impulse Buying Tendency	IBT1	0.824[**]	0.679	0.025	0.001
	IBT2	0.906[**]	0.821	−0.002	0.000
	IBT3	0.794[**]	0.63	0.114[*]	0.013
	IBT4	0.877[**]	0.769	−0.149[**]	0.022
Perceived Usefulness	USE1	0.687[**]	0.472	0.214[**]	0.046
	USE2	0.998[**]	0.996	−0.150[**]	0.023
	USE3	0.965[**]	0.931	−0.064	0.004
Perceived Enjoyment	ENJ1	0.859[**]	0.738	0.029	0.001
	ENJ2	0.925[**]	0.856	−0.017	0.000
	ENJ3	0.903[**]	0.815	−0.012	0.000
Information Fit-to-Task	INFT1	0.879[**]	0.773	0.031	0.001
	INFT2	0.927[**]	0.859	−0.031	0.001
Urge to Buy Impulsively	UTB1	0.889[**]	0.79	0.022	0.000
	UTB2	0.924[**]	0.854	−0.011	0.000
	UTB3	0.919[**]	0.845	−0.011	0.000
Average		0.849	0.727	−0.0004	0.006

[*] $p < 0.05$.
[**] $p < 0.01$.

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