Exploring consumers' purchase intention in social commerce

An empirical study based on trust, argument quality, and social presence

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Abstract

Purpose – The purpose of this paper is to explore motivations that drive consumers' purchase intention in social commerce, and then examine whether social presence can work as a moderator in this process.

Design/methodology/approach – A research model was developed based on stimulus-organism-response model by integrating trust, argument quality, social presence and purchase intention. Using the data collected from 288 valid online questionnaires, the proposed model was empirically assessed by partial least square (PLS) SEM.

Findings – The results show that trust toward social commerce site and trust toward site members are determinants of purchase intention, and the later one can be triggered by the argument quality of consumer-generated contents (perceived informativeness and perceived persuasiveness). Besides, consumers' social presence has a moderating effect on the relationship between trust toward site members and purchase intention.

Originality/value – This study indicates a new mechanism of trust based on the context of social commerce. The findings will contribute to social commerce literature by offering a well proven conceptual model that facilitates the understanding of consumers' purchase decision-making processes.

Keywords Purchase intention, S-O-R model, Trust, Argument quality, Social presence, Social commerce site

Paper type Research paper

1. Introduction

Social commerce is a new form of e-commerce that applies the features of Web 2.0 technologies to design a customer-oriented business (Liang and Turban, 2011). It enables consumers to generate contents for the purpose of sharing information about their shopping experiences and conduct social interactions in purchase processes. Different from traditional e-commerce platforms, social commerce sites are embedded with some social networking capabilities. For example, Dianping.com, a famous social commerce site in China, allows consumers to establish their own profiles, share shopping experiences, review products or services and even build social relationships with other online consumers. Generally speaking, there exist two major modes of social commerce. The first one can be called indirect purchasing mode. For example, nowadays many companies join popular social media, such as Facebook and Instagram to run fan pages. Through these pages, companies can advertise and promote goods, and social media users can browse posts, share experiences and discuss some information related to their interested products or services (Cho, 2017; Farivar *et al.*, 2017). The second mode is direct purchasing model. In this mode, consumers can purchase goods directly from some social commerce sites. These sites can be regarded as a type of online shopping platforms leveraging Web 2.0 tools and concepts to establish individuals' social interactions during purchase processes.

They connect consumers with each other and encourage them to review, rate, recommend, share and then promote their purchase intention (Hajli, 2015). Compared with fan pages and virtual communities of social commerce, the direct purchase mode is much closer to situations requiring consumers to make purchase decisions, thereby actual behaviors or intentions during purchase processes can be more easily detected. This study is to explore consumers' purchase intention in social commerce, and thus the direct purchasing mode will be mainly considered.

Social commerce is a both rewarding and challenging business model. It is expected that the global revenue of social commerce will reach \$80bn by 2020 (Insights, 2012), and thus has huge market potential. But on the other hand, as a great number of social commerce sites are available in recent years, intense competitions among social commerce providers inevitably exist. From a corporate perspective, understanding how to motivate consumers' intention to engage in online purchases from social commerce sites is an important approach to achieve competitive advantages and tap economic value (Farivar *et al.*, 2017; Zhang, Lu, Gupta and Zhao, 2014; Zhang, Zhao, Cheung and Lee, 2014). Therefore, the need to explore some determinants of consumers' purchase intention in social commerce and then identify the purchase decision-making process of this special business model from some new perspectives will be highlighted. Previous literature indicates that trust is a crucial issue in the context of online shopping, and due to the salient role of peer-generated contents, it is more important for social commerce platforms (Hajli *et al.*, 2017). Many researchers have tried to explore some relationships between trust in social commerce and purchase intentions. For example, Kim and Park (2013) revealed some key factors influencing consumers' trust in social commerce, and then assessed the effects of trust on purchase intentions and WOM intentions. Hajli *et al.* (2017) described that trust in social commerce could increase information seeking which in turn enhanced familiarity with the platform and the sense of social presence. Then consumers' purchase intention would be promoted. From these studies, it is not difficult to find that when examing the effect of trust, researchers usually regard it as an entirety. Actually, in social commerce, some social contexts decide that consumers' assessments of trust will be not only related to online platforms such as social commerce sites, but also driven by the trustworthiness of site members (Farivar *et al.*, 2017). In other words, if these peers are perceived as trustworthy, then consumers may perceive that purchasing from the social commerce site is less risky. Therefore, trust in social commerce is based on both a website itself and its members. Some existing studies have revealed the important role of peer-generated contents in affecting trust during the process of social commerce (e.g. Kim and Park, 2013; Lu *et al.*, 2016), but their effect on trust has never been examined from a more detailed perspective. According to Hajli (2015), consumers usually seek and find the information they need in a social commerce site through posted ratings, reviews, recommendations and referrals which are mainly created by members belonging to the same platform. Therefore, whether consumers' trust toward site members will be influenced by these peer-generated contents is required to further explore. Finally, compared with common e-commerce, social commerce is more oriented toward social goals, such as networking, collaborating and information sharing, and consumers are able to get access to more social knowledge and experiences to support them in making more informed and accurate purchase decisions (Dennison *et al.*, 2009; Wang and Zhang, 2012). Therefore, perceived social presence may be more important in consumers' purchase decision-making processes. Previous literature has demonstrated that social presence can promote trust in social commerce environments (Lu *et al.*, 2016), however, to the best of our knowledge, few of them have examined whether it will further influence the relationship between trust and purchase intention.

Based on these motivations, the present study intended to explore the purchase decision-making process in social commerce from a new perspective. We employed the

stimulus-organism-response (S-O-R) model to explore how consumers' purchase intention can be influenced from aspects of trust, argument quality of peer-generated contents, and social presence. In our analytical model, trust was analyzed from more detail dimensions: "trust toward site" and "trust toward site members" based on the social commerce context. After that we would examine the relationship between the two dimensions of trust and then further explore whether the argument quality of peer-generated contents can be regarded as a determinant of trust toward site members. Moreover, the moderating role of social presence in the relationship between the two dimensions of trust and purchase intention would be also discussed. The remainder of this paper is structured as follows. In Section 2, theoretical background of this research is provided, and based on it, hypotheses and research model are developed in Section 3. Then, Section 4 indicates the research methodology of this study, followed by a test mode, data analysis and results in Section 5. Finally, the findings of this study are discussed, and the research is concluded with implications, limitations and future suggestions in Section 6.

2. Theoretical background

2.1 S-O-R model
The S-O-R model was created by Mehrabian and Russell (1974) and modified by Jacoby (2002). It mainly demonstrates that a stimulus can provoke an organism which initiates internal processes to prepare for making the final response. In this model, the term "stimulus" means "the influence that arouses the individual" (Eroglu *et al.*, 2001, p. 179). It can be found in various aspects of an environment. The term "Organism" refers to the inward states of perceptions, feelings and thinking exercises (Bagozzi, 1986), and previous studies considered these constructs as cognitive and emotional states of someone (Donovan and Rossiter, 1982). Last, "response" is related to individuals' final choices and their behavioral responses (Mehrabian and Russell, 1974). In the context of online shopping, this model can reveal that environmental stimuli (S) will influence consumer internal states (O) and correspondingly affect consumers' overall responses (R). According to it, we regarded argument quality of consumer-generated contents on social commerce sites as the environmental stimulus. The organism pertains to customers' cognitive and emotional judgment of these contents, which are presented in the form of trust toward site members and trust toward site. Then following Hsu *et al.* (2011), consumers' purchase intention was treated as consumer behavioral responses.

The S-O-R model can be regarded as an appropriate paradigm for our study because this model is a well-established research framework that has been widely applied to explore consumer behavior in social commerce. It is usually viewed as a strict and structured manner which can be extended to examine the impact of interpersonal interaction factors on consumers' online experiences and their subsequent intention to purchase from social commerce sites (Liu *et al.*, 2016). For example, drawing on the S-O-R framework, Zhang, Lu, Gupta and Zhao (2014) developed a model to investigate the effects of technological features of social commerce on consumers' virtual experiences and subsequently their participation intention. Huang (2016) also applied the S-O-R model to explore the influence of affective and reactive factors, as well as two mediators of consumers' online impulse buying behavior in social commerce. The findings of these studies have demonstrated the explanatory power of the S-O-R model to analyze individuals' internal reactions and behavioral outcomes to some stimuli.

2.2 Argument quality of consumer-generated contents as environmental stimuli (S)
Social commerce sites facilitate the sharing and exchanging of product information by individuals. They are able to provide consumers with more interactive and proactive approaches to express themselves and share their shopping experiences with others.

Therefore, a set of social components such as social recommendations, consumer ratings and online reviews have been introduced in this business model (Li *et al.*, 2013). Consumers can gather a variety of information in a purchase process to aid their decisions (Bai *et al.*, 2015). Some studies have also shown that consumers will look at comments from other consumers and social recommendations posted on social commerce sites before they make purchase decisions (Zheng *et al.*, 2013). Thus, it is logical to suppose that consumers' purchase stimulus depends on the argument quality of information collected from these social components to some extent.

According to previous literature, argument quality can be examined from two perspectives. First, some scholars defined it as the "the strength or plausibility of persuasive argumentation" (Eagly and Chaiken, 1993, p. 325). This definition pertains to perceptions of strong and convincing arguments. Second, the argument quality was also defined as the "factor on which information recipients base their validity assessments during systematic processing" (Ferran and Watts, 2008, p. 1568) by another researchers. Following this line of definition, argument quality can be examined through whether received information is complete, consistent, accurate or adequate (Zhang and Watts, 2008). To reconcile these inconsistent understandings, in recent years, some studies define argument quality from both the two dimensions: perceived persuasiveness and perceived informativeness (Zhang, Zhao, Cheung and Lee, 2014; Zhou *et al.*, 2017).

In the context of social commerce, perceived persuasiveness represents the general perceptions regarding the strength of persuasiveness embedded in online reviews, and is evaluated based on factors such as reliability and objectivity of them (Zhang, Zhao, Cheung and Lee, 2014), and perceived informativeness can be regarded to consumers' overall perceptions regarding the information quality of products or services, and it can be evaluated based on some characteristics such as timeliness, relevance and completeness of information (Zhang, Zhao, Cheung and Lee, 2014; Zhou *et al.*, 2017). They may work as stimulus to motivate consumer internal states.

2.3 Trust as customer internal states (O)
Trust deals with "the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau *et al.*, 1998, p. 395). In transactional buyer–seller relationships, trust will be increased when the trusted party shows behavior or other indicators in accordance with one's expectations (Gefen and Straub, 2004). As the rise of the internet and e-commerce in the late 1990s, trust has been expanded into a new context. The limited web interface does not allow consumers to judge whether a vendor is trustworthy in a typical face-to-face interaction, which results in greater uncertainty and heightened risk in online buying decisions (Bilgihan, 2016; Reichheld and Schefter, 2000). Gefen *et al.* (2003) argued that in e-commerce, trust is a crucial factor especially some elements of uncertainty and risk may exist, because it can be used to reduce transaction costs when people are not able to judge whether opportunisms and uncertain situations will emerge. Social commerce is a subset of e-commerce that involves Web 2.0 technologies, and thus trust will still play a significant role in reducing the uncertainty existing in online transactions.

As mentioned above, social commerce enables consumers to create contents and allow everyone to share, recommend and rate products or services. Therefore, in this business model, trust cannot be easily developed only based on some cues of a social commerce website itself. Consumers' interactions and information contributions are also important foundations to shape trust. That is why, Farivar *et al.* (2017) have indicated that in social commerce, trust will be developed from two sources. The first one is related to some trust building cues of a social commerce website, such as its transaction records and commitments. This source of trust can be viewed as "trust toward site." The second one is

based on other social commerce users' interactions and opinions. This kind of trust captures individuals' willingness to be vulnerable to recommendations, comments, reviews and feedbacks. In this study, trust developed from this source is called "trust toward site members," These two types of trust may help consumers cognitively and emotionally assure that both the experienced consumers and the website operators are reliable, and then some responses such as purchase intentions are likely to be promoted.

2.4 Purchase intention as response (R)

In the context of social commerce, purchase intention refers to consumers' intention to engage in online purchases from e-vendors on social commerce sites. Intention has been proved to be a valid predictor of the actual behavior (Venkatesh and Davis, 2000). Since actual behaviors are usually difficult to measure, it is quite common to measure the behavioral intention as a surrogate to some actual behaviors (Zhang, Lu, Gupta and Zhao, 2014). Based on this point, purchase intention can be regarded as a reflection of consumers' behavioral outcomes.

It is obvious that purchase can be considered as a final decision in most transactions. At the same time, many previous studies of social commerce (e.g. Chen *et al.,* 2017 and Liu *et al.,* 2016) have regarded purchase intention as the response in the S-O-R model, because they think it can reflect outcomes and choices of consumers. Therefore, in this study, purchase intention in social commerce will be still treated as the response in our research model. It represents the final decisions of consumers based on some trust building cues.

2.5 Social presence

Social presence is "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Short *et al.*, 1976, p. 65). Briefly speaking, it means the awareness of the presence of interaction partners when conducting communications. Zhang *et al.* (2012) pointed out that a high degree of social presence will provide people with a sense of human warmth and sociability. As social presence can be high or low in any given website, consumers will perceive it when browsing e-commerce sites, especially they accomplish personal, sociable and warm human contacts through actual interactions with other individuals in online environments (Gefen and Straub, 2003, 2004).

As a subset of e-commerce, social commerce can give consumers more opportunities to support each other with information exchange and contents they generate through social media (Hajli, 2013). Compared with traditional e-commerce, more peer interactions may exist during purchase processes in social commerce, and thus a higher degree of social presence can be embedded in such type of commerce. Although previous literature has shown that social presence will result in trust in social commerce (Lu *et al.*, 2016), the current study will further analyze whether the relationship between consumers' trust resulting from interactions with peers and purchase intention can be influenced by it. It can be regarded as another approach to check the role of social presence in social commerce.

3. Research model and hypotheses development

Based on the S–O–R framework and the above discussion, we presented the research model and the hypothesized relationships of this study is shown in Figure 1. The model considers perceived persuasiveness and perceived informativeness as the stimuli (S), trust toward site members and trust toward site as consumer internal states (O) and purchase intention as response (R). Besides, the moderating effect of social commerce was also checked in this study.
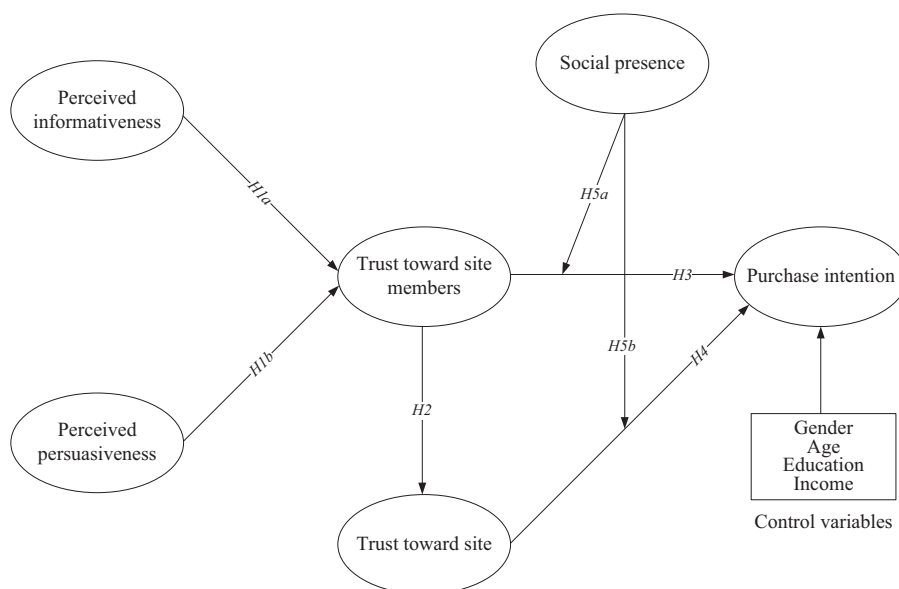
Social presence

Perceived
informativeness

H1a

H5a

Trust toward site
members

H3

Purchase intention

H1b

H5b

H4

Perceived
persuasiveness

H2

Gender
Age
Education
Income

Trust toward site

Control variables

Figure 1.
Research model

3.1 Argument quality and trust toward members

As mentioned above, argument quality is examined from perceived persuasiveness and perceived informativeness in this study. Previous literature has indicated that informativeness plays an important role in the formation of consumers' attitudes toward a commercial website. More than ten years ago, Liao *et al.* (2006) argued that a website providing the latest, accurate, and complete information are likely to be accepted as a trustworthy online firm. For social commerce, consumers are largely dependent upon information provided by other members who purchased products or services from those sites. Therefore, it can be predicted that if members of a social commerce site can provide relevant, timely and comprehensive information about products or services, then trust toward them is likely to be enhanced.

Besides, some strong information (i.e. information that is objective, understandable and packed with concrete data) have been proved to bring positive utility to a product or service (Eagly and Chaiken, 1993; Petty and Cacioppo, 1984) for traditional marketing field. In the context of online shopping, Park *et al.* (2007) examined the effect of online consumer reviews and found that persuasive reviews which consist of objective comments with sufficient reasons would promote consumers' positive attitude and intention. Gradually, mutual trust among peers may be formed in such environment. Accordingly, we predicted that if members of a social commerce site can provide persuasive information with each other, they will trust these peers more. Thus, the following hypotheses were proposed:

H1a. Perceived informativeness is positively related to trust toward site members.

H1b. Perceived persuasiveness is positively related to trust toward site members.

3.2 Trust toward site members and trust toward site

When users of a website are deemed to be trustworthy, this information can be used as a basis for judging the trustworthiness of the website (Turel and Gefen, 2013). It can be called a trust transference process which may help users cognitively assure that the

website operators have good intentions. To enhance evaluations of products and make better-informed purchasing decisions, social commerce allows consumers to interact actively with consumer peers. Therefore, reviews, recommendations, ratings, likes and other types of member-generated contents are highly valuable to the trust level of a social commerce site. Many online consumers will read these contents and use them to aid their decision making. Farivar *et al.* (2017) argued that consumers' trust in the website could be based on trust cues they receive from members of the website. In other words, if they receive reviews from credible members, then they may expect and further perceive that social commerce sites providing these high-quality contents are trustworthy. Thus, the following hypothesis was proposed:

H2. Trust toward site members is positively related to trust toward site.

3.3 Trust and purchase intention

Trust can be regarded as a significant antecedent belief that creates a positive attitude toward transaction intention (Jarcenpaa *et al.*, 2000). "Experts' statements can be trusted" is a commonly accepted heuristic cue (Chaiken *et al.*, 1989). This example highlights the important role of source credibility. Similarly, Senecal and Nantel (2004) have argued that consumers who receive recommendations from trustworthy others are more likely to select corresponding products. Social commerce allows potential consumers to hear experienced consumers' opinions or suggestions and to ask for reviews and comments on the products or services they intend to purchase. Thus, it can be predicted that if consumers trust site members, they may be more willing to purchase product or services reviewed or recommended by these members. In addition, prior literature indicates that consumers may be more dependent on a trustworthy intermediary that has robust mechanism to protect its consumers in online transactions (Shi and Liao, 2017). This is because the trust of such an intermediary may reduce uncertainty in transactions and eliminate opportunistic behavior of suppliers (Kim *et al.*, 2009). In this study, a social commerce site can be regarded as an intermediary. Through it consumers can discover, rate, recommend, share and purchase products or services provided by e-vendors. Therefore, we predicted that trust toward a social commerce site will attract consumers' continuance usage and gradually their purchase intentions are more likely to be promoted. Generalizing from the above discussions, the following hypotheses are proposed:

H3. Trust toward site members is positively related to purchase intention.

H4. Trust toward site is positively related to purchase intention.

3.4 The moderating role of social presence

Trust is typically built through extensive ongoing interactions that enable individuals to create reliable expectations of what other persons or organizations may do (Fukuyama, 1995; Gefen and Straub, 2004). In this process, human warmth and sociability in interactions are important characteristics of trust. In the context of e-commerce, Gefen and Straub (2004) argued that the perception of a high degree of social presence, implying direct or indirect human contacts, in the relationship should contribute to the building of trust. Social commerce can be regarded as a subset of e-commerce, and as mentioned above, two types of trusts (trust toward site and trust toward site members) may exist; here, we will analyze them, respectively.

Pavlou *et al.* (2007) argued that social presence will shorten the perceived social distance between buyers and sellers in online transactions which would promote trust. In social commerce, reviews and recommendations are mainly contributed by peers, thus apart from

buyers and sellers, the social distance between consumers and their peers may also be shortened when social presence is high, and then trustworthy relationships among site members are likely to be contributed. Besides, social commerce sites with high social presence will include more interactive information and social cues, and thus shopping processes will be perceived to be more transparent (Lu *et al.*, 2016). It is not difficult to understand that consumers are more willing to purchase products or services in such a transparent context, because they believe some untrustworthy behaviors are more likely to be inhibited. Then, consumers' trust toward these sites may be improved.

In addition to trust, according to the primary argument of social cognitive theory, an individual's behavioral intention is a function of not only behavior, but also of cognitive processes and environmental factors (Bandura, 1986). Compared with traditional e-commerce, more social features are embedded in social commerce. In consumers' cognitive processes, the perception of personal, sociable and sensitive human contacts has more potential to increase traffic of a social commerce website and improve consumers' experience in a shopping environment (Boateng *et al.*, 2016), which may then benefit their finally intention to purchase. That is why, an empirical study conducted by Weisberg *et al.* (2011) indicated that relationship between social presence and consumers' purchase intention is positive.

Based on the above analysis, we predicted that social presence will influence the relationship between trust and purchase intention. High social presence is more likely to promote the effect of trust on purchase intention. Since in this study, trust was specially divided into two dimensions: trust toward site and trust toward site members, we proposed the following hypotheses:

H5a. Social presence will moderate the relationship between trust toward site members and purchase intention such that the relationship is stronger when social presence is high.

H5b. Social presence will moderate the relationship between trust toward site and purchase intention such that the relationship is stronger when social presence is high.

4. Research methodology
4.1 Measurement
The measurement items for constructs in this study were adapted from prior literature to ensure validity, which include the following six constructs: perceived informativeness, perceived persuasiveness, trust toward site members, trust toward site, social presence and purchase intention. All items were measured with a seven-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7). The items of perceived informativeness and perceived persuasiveness were adapted from Zhang, Zhao, Cheung and Lee (2014). The items of trust toward site are adapted from the work of Farivar *et al.* (2017). The items of trust toward site members are adapted from Pavlou and Gefen (2005). The items of social presence were adapted from Gefen and Straub (2003). Last, the items of purchase intention were adapted from Liu *et al.* (2016). Besides, to avoid systematic individual differences and increase insight, we specified various population characteristics which may influence a customer's purchase intention as control variables. Previous literature suggests that age, gender, education and income can work as differentiating factors of purchase intention (Fang *et al.*, 2014; Luo *et al.*, 2012; Wang and Zhang, 2012). Therefore, we controlled for the four variables.

As the original items were in English, to make sure that the meanings of the questions can be accurately understood, a back-translation method was used to convert these items into Chinese. Moreover, to further access the logical consistency and ease of understanding

of the questionnaire, 30 graduate students who had social commerce use experience and five IS scholars were invited to a pilot study. Some ambiguous items were reworded to ensure clarity. The Appendix of this paper lists all measurement items.

4.2 Sample and data collection

We chose Dianping.com as the research context. This website is a popular marketing platform for restaurants and other local businesses across regions. Besides, it has also become the largest independent consumer review and rating website in China and is also available worldwide. As of the third quarter of 2015, Dianping.com had more than 200m monthly active users, over 100m user-generated reviews and ratings, and more than 20m local businesses in approximately 2,500 cities worldwide (additional information is available at: www.dianping.com/aboutus/intro). Compared with traditional e-commerce platforms, Dianping.com is with more social features. On this website, almost all contents of products and services are generated by its members through their rating and comments. Besides, it enables registered users to establish their own profiles, follow other members, contact with others through using communication tools and engage in social activities, such as liking and sharing. Therefore, it can be considered as a typical social commerce site which is suitable for examining the research model of this study.

An online questionnaire website (www.wenjuan.com/) was employed to display our questionnaire and collect data. Respondents were asked to answer all questions based on their purchase experience of social commerce. In order to avoid replications, we checked the IP address of every respondent when online questionnaires were received. At the same time, to ensure all the respondents have shopping experience on Dianping.com, at the beginning of the online questionnaire, we set an item to let participants to recall a recent purchase experience on this social commerce site. If someone chooses the option "I have never purchased anything on Dianping.com", this survey will be stopped automatically.

Data were gathered from November to December, 2017. Our survey hyperlink was placed on the forums of Dianping.com (http://s.dianping.com/recommend/groups?utm_source=forum_pc_index). To encourage participation, 5 RMB would be offered to all valid respondents through the "red packet" function embedded in our online questionnaire. Totally, 305 respondents participated in our survey. After removing 5 incomplete responses and 12 respondents who never used Dianping.com, 288 valid responses remained. The response rate was 94.4 percent. Table I shows the detailed sample demographics.

Measure	Item	Frequency	%
Gender	Male	152	52.8
	Female	136	47.2
Age	Less than 20	28	9.7
	20–29	157	54.5
	30–39	83	28.8
	40–49	16	5.6
	More than 50	4	1.4
Education	High school and below	23	8.0
	Two-year college	106	36.8
	Undergraduate	140	48.6
	Graduate and above	19	6.6
Income (RMB)	Below 3,000	22	7.6
	3,001–5,000	15	19.1
	5,001–8,000	112	38.9
	8,001–10,000	85	29.5
	Above 10,000	14	4.9

Table I.
Sample demographics

5. Data analysis and results

Partial least square (PLS) SEM with Smart PLS 3.2.7 was employed to test the research model. PLS-SEM is a suitable method for exploratory and prediction oriented studies such as the current research, and meanwhile it can evaluate a relatively small sample size without the requirement of normal distribution (Chin *et al.*, 2003). We followed the two-step approach for data analysis suggested by Anderson and Gerbing (1988) to test the measurement model and structural relationships among the latent constructs, respectively.

5.1 Measurement model

Cronbach's α and composite reliability (CR) were employed to test the internal consistency of each construct (reliability) (Fornell and Larcker, 1981). As Table II shows, the values of Cronbach's α range from 0.827 to 0.863 which are higher than the threshold of 0.7 recommended by Nunnally (1978). At the same time, all the values of CR are higher than 0.8, which are above the benchmark value of 0.7 suggested by Fornell and Larcker (1981). Therefore, good reliability and stability of the measurement items can be indicated.

After that we assessed the convergent and discriminant validity of the measures, respectively. Convergent validity was examined by two criterions recommended by Fornell and Larcker (1981): all indicator loadings should be significant and exceed 0.7; the average variance extracted (AVE) of each construct should be greater than 0.50. As Tables II and III display, the indicator factor loading of each item in the measuring model exceeds 0.7, and the values of AVE range from 0.684 to 0.784. Thus, this research meets all conditions for convergent validity. To examine discriminant validity, the cross loadings and the square root of AVEs were tested (Chin, 1998; Fornell and Larcker, 1981). As Table III indicates, the loading of each measurement item onto its assigned latent variable is larger than its loading on any other construct. Besides, in Table IV, the diagonal elements are the square roots of AVE for the constructs. It shows that all square roots of AVE are larger than any correlations between that construct and other constructs. Therefore, we can conclude that the discriminant validity is acceptable.

5.2 Structural model

In the structural model, the path coefficients and the explanatory power of constructs (R^2) were examined. We assessed the significance of all paths via 5,000 bootstrap runs. Figure 2 shows the standardized path coefficients, path significances and R^2 by each path. The model explains 27.9 percent of the variance in purchase intention. Besides, the explained variance of trust toward site member and trust toward site is 28.4 and 23.9 percent, respectively. Among all structural paths, perceived informativeness and perceived persuasiveness are positively related to trust toward site members, respectively ($\beta = 0.294$, $p < 0.001$; $\beta = 0.321$, $p < 0.001$). Thus, *H1a* and *H1b* are supported. Besides, trust toward site members has a positive effect on and trust toward site ($\beta = 0.489$, $p < 0.001$). Therefore, *H2* is supported. Last, both trust toward site members and trust toward site can

Constructs	Cronbach's α	Composite reliability (CR)	Average variance extracted (AVE)
Perceived informativeness	0.827	0.896	0.743
Perceived persuasiveness	0.828	0.896	0.741
Social presence	0.854	0.911	0.773
Trust toward site members	0.862	0.916	0.784
Trust toward site	0.846	0.896	0.684
Purchase intention	0.863	0.916	0.784

Table II.
Reliability and
convergent validity

Items	PI	PIN	PP	SP	TTM	TTS
PI1	*0.880*	0.235	0.472	0.288	0.427	0.321
PI2	*0.881*	0.220	0.385	0.207	0.380	0.316
PI3	*0.824*	0.254	0.427	0.216	0.361	0.377
PIN1	0.234	*0.878*	0.300	0.306	0.346	0.330
PIN2	0.195	*0.878*	0.239	0.262	0.327	0.350
PIN3	0.289	*0.899*	0.281	0.319	0.398	0.427
PP1	0.422	0.233	*0.849*	0.292	0.367	0.359
PP2	0.394	0.222	*0.846*	0.269	0.326	0.397
PP3	0.462	0.323	*0.887*	0.355	0.484	0.391
SP1	0.320	0.334	0.368	*0.902*	0.371	0.350
SP2	0.222	0.265	0.256	*0.886*	0.295	0.343
SP3	0.168	0.277	0.316	*0.849*	0.257	0.355
TTM1	0.395	0.384	0.400	0.310	*0.882*	0.483
TTM2	0.373	0.373	0.393	0.336	*0.896*	0.388
TTM3	0.436	0.320	0.449	0.300	*0.879*	0.424
TTS1	0.331	0.341	0.346	0.329	0.499	*0.830*
TTS2	0.357	0.338	0.380	0.336	0.411	*0.833*
TTS3	0.329	0.353	0.376	0.362	0.332	*0.842*
TTS4	0.270	0.363	0.367	0.285	0.353	*0.803*

Table III.
Loadings and cross-loadings of measures

Notes: PI, perceived Informativeness; PP, perceived persuasiveness; TTM, trust toward site members; TTS, trust toward site; SP, social presence; PIN, purchase intention

	PI	PIN	PP	SE	TTM	TTS
PI	*0.862*					
PIN	0.274	*0.885*				
PP	0.498	0.309	*0.861*			
SP	0.277	0.336	0.361	*0.879*		
TTM	0.454	0.406	0.467	0.356	*0.885*	
TTS	0.390	0.421	0.443	0.396	0.489	*0.827*

Table IV.
Correlation among the constructs and the square root of the AVE

Notes: PI, perceived Informativeness; PP, perceived persuasiveness; TTM, trust toward site members; TTS, trust toward site; SP, social presence; PIN, purchase intention

positively influence and purchase intention ($\beta = 0.250$, $p < 0.001$; $\beta = 0.214$, $p < 0.01$). Thus, *H3* and *H4* are supported. In addition, we also included the four control variables (gender, age, education, income), but none of them has a significant effect on purchase intention.

To test the moderating effect of social presence (*H5a* and *H5b*), two interaction effects were calculated ("trust toward site members × social presence" and "trust toward site × social presence"), and we tested whether the two interaction effects could positively affect purchase intention, respectively. Through Smart PLS 3.2.7, each measurement was mean-centered before interaction to alleviate multicollinearity. Then, the software estimated the significance of the two new interaction variables. The results demonstrated that the interaction between social presence and trust toward site members is positively related to purchase intention ($\beta = 0.136$, $p < 0.05$). Thus, *H5a* is supported. However, the interaction between social presence and trust toward site is not significant related to purchase intention ($\beta = 0.031$, $p > 0.05$). Therefore, *H5b* is not supported. To further illustrate the significance of moderation effects, this study follows the procedure of Aiken and West (1991) to decompose the interactive terms. The results of simple slope tests were plotted in Figures 3 and 4.
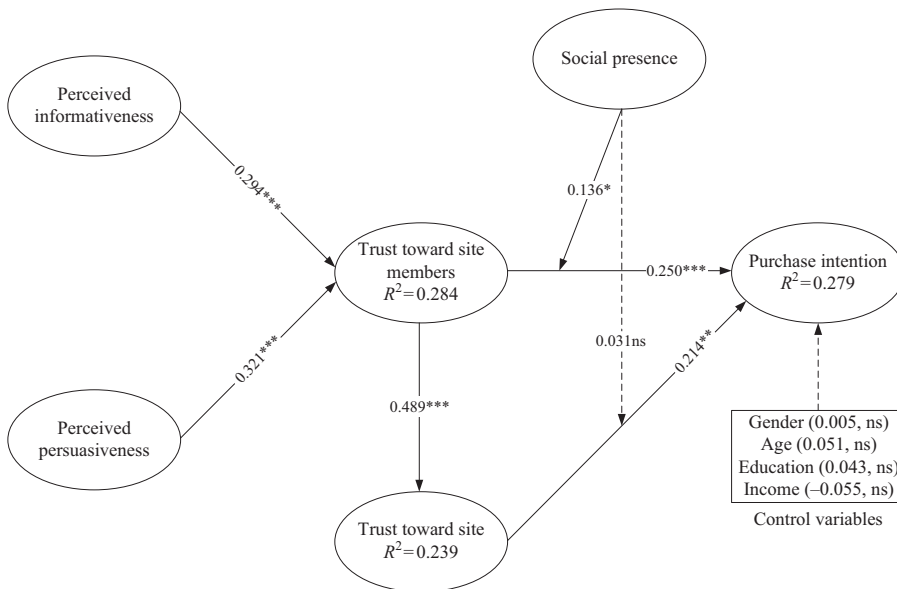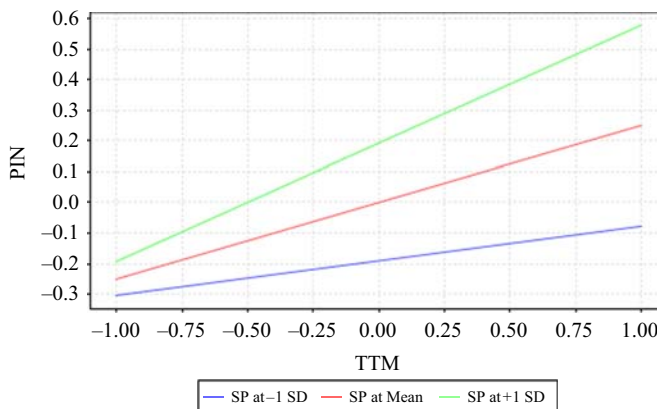
Notes: ns=not significant. *$p<0.05$; **$p<0.01$; ***$p<0.001$

Figure 2.
Results of the
research model

Notes: PIN, purchase intention; SP, social presence; TTM, trust toward
site members

Figure 3.
Moderating effect of
SP on the path from
TTM to PIN

5.3 Common method bias

As the data of this study are purely self-reported, common method bias (CMB) can be an important reason to cause measurement errors (Dijkstra *et al.*, 2005). Therefore, we tried to assess the possible effects of CMB from the following two approaches.

First, the Harman's single factor test (Harman, 1976) was employed to check our data. All the variables were loaded into an exploratory factor analysis via SPSS 21.0, and the first (largest) factor which was extracted using unrotated exploratory factor analysis only

Figure 4.
Moderating effect of
SP on the path from
TTS to PIN
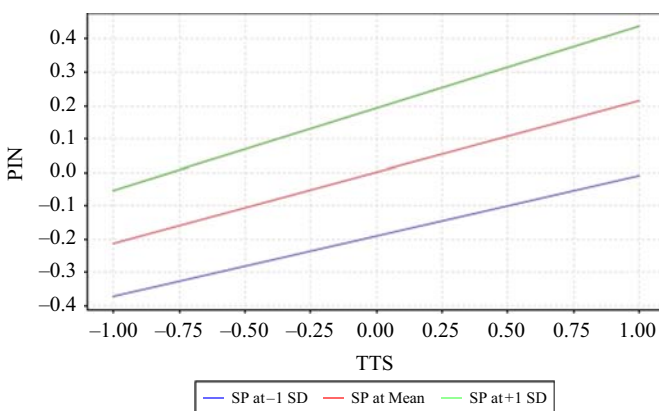
Notes: PIN, purchase intention; SP, social presence; TTS, trust toward
site

accounts for 37.078 percent of the overall variance, less than 50 percent. That means, CMB is not a significant problem. The second method to check the possibility of CMB is using PLS-SEM, which is introduced by Liang *et al.* (2007). In this method, two criteria were used to indicate that CMB is not a serious concern: the indicators' substantive variances are substantially greater than their method variances; the method factor loadings are insignificant. As displayed in Table V, the indicators' substantive variances ($R1^2$) are substantially larger than their method variances ($R2^2$), and almost all of the method factor loadings are not significant. Therefore, it can be concluded that CMB is not a serious problem in our research.

6. Discussion and implications

6.1 Discussion of findings

In the current study, a social commerce adoption model has been developed to analyze consumer's purchase intention. First, the findings show that trust is still an important issue in social commerce and it specifically plays an important role in promoting purchase intention. Although this finding is consistent with many previous literature such as Hajli *et al.* (2017) and Kim and Park (2013), the present study examines the effect of trust by dividing it into two detailed dimensions based on the features of social commerce, and meanwhile discusses the relationship between the two dimensions. It can be found that both trust toward site members and trust toward site can motivate purchase intention. Additionally, for consumers, trust toward site members will contribute to trust toward site. All of these results can further verify the findings of Farivar *et al.* (2017) to some extent.

Second, the findings of this study also provide empirical support for the influence from argument quality of consumer-generated contents to purchase intention in the context of social commerce. Specifically speaking, the argument quality of consumer-generated contents can directly promote consumers' trust toward members which in turn indirectly motivate their trust toward site. Finally, both of the two dimensions of trust are able to positively influence purchase intention in social commerce. These findings further show that perceived informativeness and perceived persuasiveness can be important predictors of consumers' behavioral intention. In other words, high argument quality of consumer-generated contents will highlight consumers' positive power on purchase intention.

Items	Substantive factor loading (R1)	Substantive variance ($R1^2$)	t-statistics	Method factor loading (R2)	Method variance ($R2^2$)	t-statistics
Perceived informativeness						
PI1	0.868	0.753	*50.905*	0.040	0.002	0.926
PI2	0.886	0.785	*62.547*	−0.075	0.006	1.626
PI3	0.831	0.691	*39.383*	0.037	0.001	0.727
Purchase intention						
PIN1	0.886	0.785	*72.345*	−0.014	0.000	0.386
PIN2	0.886	0.785	*70.705*	−0.066	0.004	*2.020*
PIN3	0.885	0.783	*72.195*	0.079	0.006	*2.028*
Perceived persuasiveness						
PP1	0.862	0.743	*50.693*	−0.050	0.003	1.174
PP2	0.872	0.760	*64.811*	−0.084	0.007	*2.084*
PP3	0.854	0.729	*55.385*	0.133	0.018	*2.818*
Social presence						
SP1	0.883	0.780	*68.267*	0.091	0.008	*2.657*
SP2	0.894	0.799	*74.786*	−0.057	0.003	1.751
SP3	0.862	0.743	*51.435*	−0.036	0.001	0.971
Trust toward site members						
TTM1	0.876	0.767	*64.109*	0.050	0.003	1.155
TTM2	0.901	0.812	*85.272*	−0.061	0.004	1.536
TTM3	0.879	0.773	*66.838*	0.011	0.000	0.259
Trust toward site						
TTS1	0.812	0.659	*42.171*	0.076	0.006	1.397
TTS2	0.835	0.697	*46.262*	0.026	0.001	0.548
TTS3	0.855	0.731	*51.775*	−0.049	0.002	0.850
TTS4	0.808	0.653	*37.956*	−0.054	0.003	0.902

Note: t-statistics in italic are significant, $p < 0.05$

Table V.
Common method
bias analysis

Third, based on this study, we found that the relationship between trust toward site members and purchase intention will be stronger when social presence is high. Gefen and Straub (2004) argued that the perception of a high degree of social presence will enhance consumers' trust because it brings personal, sociable and warm human contacts. From a consumer perspective, such attributes are clearly desirable and will promote social identification (Caspi and Blau, 2008). As indicated in prior literature, the sense of identification in a virtual community can enhance the trust relationships among members (Cremer and Vugt, 1999; Koh and Kim, 2004) that will encourage consumers' active intentions in social commerce, such as purchase intention. However, to our surprise, social presence cannot moderate the relationships between trust toward site and purchase intention. One possible explanation is that social presence will be conveyed by social design features, but most websites do not facilitate direct interaction with another human (Lu *et al.*, 2016). In social commerce, social design features are embedded in actual interactions conducted among site members. Therefore, the effect of trust toward site members on purchase intention can be significantly moderated by social presence rather than the relationship between trust toward site and purchase intention.

6.2 Theoretical implications
The current research goes a step further by proposing a new approach to study purchase intention in the context of social commerce. Specifically, the theoretical implications are discussed as follows.

First, this study increases our understanding about a purchase decision-making process in the context of social commerce. It will contribute to literature in the field of social commerce by indicating how consumers' purchase intention can be influenced from a new perspective. Drawing on the S-O-R paradigm, an analytical model that incorporates different determinants of purchase intention in social commerce was presented. It can be regarded as an alternative theoretical framework that will potentially benefit future studies of social commerce and encourage researchers to further develop and test constructs related to trust, argument quality of peer-generated contents and social presence in such a business model.

Second, our research reveals the mechanism of trust based on the context of social commerce. By examining consumers' purchase intention, the antecedents of trust and how they work in transactions have been shown. It can be found that perceived informativeness and perceived persuasiveness are two important antecedents of consumers' trust toward site members which will then benefit their trust toward site. Finally, both of the two types of trust will contribute to purchase intention. Besides, although previous literature has indicated that social presence is a necessary condition for the development of trust (Lu *et al.*, 2016), this study further shows that social presence in social commerce will also positively moderate the relationship between trust toward site members and consumers' purchase intention. Therefore, this study can be considered as a new approach to understand the role trust in social commerce.

6.3 Practical implications

As this study examines the motivation that drives consumers' purchase intention in the context of social commerce, it also has some practical implications. First, this study can advance managers' knowledge about how to motivate consumers' purchase intention. As indicated in our findings, trust toward sites and trust toward site members are two determinants of purchase intention. Although previous literature has pointed out some drivers of the two dimensions of trust (e.g. Turel and Gefen, 2013; Turel *et al.*, 2008), this study indicates that the argument quality of consumer-generated contents posted on in social commerce sites can also be regarded as an important factor in promoting trust toward site members. Therefore, more informative and persuasive contents should be encouraged to generate. For example, social commerce providers may give coupons to members who post complete, timely and relevant product or service review. Moreover, experienced consumers who provide comments based on detail data and concrete facts should also be rewarded. Besides, some forms of prosecution system are required be designed to provide consumers with channels to report any online comments that are inappropriate or fraudulent, and meanwhile this system should also enable consumers to mark and expose some irrelevant advertising information.

Second, our study provides a new insight for managers to understand the role of social presence in purchase decision-making process. The results highlight that the relationship between trust toward site members and purchase intention will be stronger when social presence is high. Chiu *et al.* (2018) argued that emotional factors are influential predictors to the desire toward purchasing goods online. Therefore, in addition to trust, sociable and warm human contacts during purchase processes in social commerce are also important. These will draw consumers into staying longer on the site and then interact more extensively with other peers. To achieve that, mutual interactions among site members are required to be kept to facilitate responsiveness and connectedness. Social commerce site operators should encourage consumers to create cliques only including some ones who have similar shopping needs or who are willing to share their personal shopping experiences with each other. For consumers, active interactions and supportive atmosphere in these cliques are more likely to increase the awareness of their peers that will benefit trust toward site members and purchase intention.

6.4 Limitations and future research

There are some limitations that should be considered in future research. First, the research sample of this study is consumers of Dianping.com. Although it is one of the largest social commerce sites in China, such a narrow focus may lead to generalizability issues of the results. Moreover, Dianping.com is mainly designed for consumers in China. Considering culture differences, some special the behaviors and attitudes toward the social commerce site may exist among these consumers. Therefore, future research should investigate consumers from other countries and other globalized social commerce sites, and then compare its results with the current study. Second, this study provided a research model that is likely be used to predict consumers' purchase intention in social commerce, but the link between theory and practice seems not to be fully achieved. Therefore, future research should try to extend this theoretical model to business practices. Some interviews and case studies can be employed in this process.

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Appendix. Measurement items

Perceived informativeness:
   PI1: Dianping.com has relevant information about the products/services.
   PI2: Dianping.com has complete information about the products/services.
   PI3: Dianping.com has timely information about the products/services.
Perceived persuasiveness:
   PP1: the information posted on Dianping.com was convincing.
   PP2: the information posted on Dianping.com was persuasive.
   PP3: the information posted on Dianping.com was strong.
Trust toward site members:
   TTM1: members of this Dianping.com are in general reliable.
   TTM2: members of this social commerce website are in general trustworthy.
   TTM3: members of this social commerce website are in general honest.
Trust toward site:
   TTS1: I believe that Dianping.com is consistent in quality and service.
   TTS2: I believe that Dianping.com is keen on fulfilling my needs and wants.
   TTS3: I believe that Dianping.com is trustworthy.
   TTS4: I believe that Dianping.com has high integrity.

Social presence:
    SP1: there is a sense of human contact on Dianping.com.
    SP2: there is a sense of sociability on Dianping.com.
    SP3: there is a sense of human warmth on this website.
Purchase intention:
    PIN1: I intend to purchase products or services from Dianping.com whenever I need to shop.
    PIN2: I plan to purchase products or services from Dianping.com in the future.
    PIN3: I predict that I will purchase products or services on this website.

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