The Effects of Social Media on E-commerce: A Perspective of Social Impact Theory

Kee-Young Kwahk  
College of Business Administration  
Kookmin University  
kykwahk@kookmin.ac.kr

Xi Ge  
Graduate School of Business IT  
Kookmin University  
bbirat@msn.com

Abstract

In recent years social media has become more and more popular all around the world. This study aims to examine the influence of social media in the e-commerce context and to find how it impacts users’ visit intention and purchase intention. Through a questionnaire survey, we test and analyze the research model and its related hypotheses by making use of structural equation modeling. The results indicate that social media interaction ties and social media commitment positively affect normative social influence and informational social influence. The last one in turn influences visit intention and purchase intention in e-commerce. In conclusion, we discuss the research findings and suggest some implications for researchers and practitioners.

Keywords: Social media, Social impact theory, Informational social influence, Normative social influence, Social commerce, E-commerce.

1. Introduction

The influence of social media on e-commerce has become more and more important. If one shares information in social media, then it could be browsed by many people, thereby leading to many-to-many spread of information. According to OTX’s social media and the purchase intention research report in 2008 [37], 70% of consumers visit social media websites such as message boards, social networking sites and blogs to get information on a company, brand or product. Further, nearly half (49%) of these consumers made a purchase decision based on the information they gathered from social media sites. Despite its growing interests, however, there are currently few studies on social media and how it affects e-commerce.

Product links in e-commerce websites are hard to be disseminated because there are not enough interactions between users. Hence, most e-commerce malls have provided other customers’ reviews of products to help potential customers choose the products they are looking for. But this kind of reviews could only be found in e-commerce malls, and there are still not enough interactions between users because this is not based on social relationships. Integrating social media with e-commerce may be a possible solution. So, our research questions are: What kind of role does social media play in the e-commerce context? And how shall we use social media to enhance e-commerce?

Some e-commerce sites have already started to provide social network services in order to improve user interaction and increase user active participation, expecting that user interaction can lead to more transactions. In a social network, users interact with and get information from each other. When a user wants to purchase a product online, he or she can get or ask for more information about the product through his or her social network. This study is based on integrating the e-commerce mall with social media. We aim to examine user behavior in the context of social media and e-commerce, and we try to find how social media affects e-commerce from a social impact theory perspective. Specifically, from the theoretical perspective, we examine how social media antecedent constructs affect e-commerce through social impact transfer. From the practical perspective, we offer suggestions on the development of business for both social media and e-commerce practitioners.

2. Theoretical Background

2.1 Social media and social commerce

Kaplan and Haenlein [25] defined social media as a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, which allows the creation and exchange of user-generated content. Social media is also named consumer-generated media and refers to user-generated content. Social media has
a lot of different forms, including virtual communities, weblogs, microblogs, wikis, pictures or video sharing, social networking sites, social bookmarking and other social applications. Studies on social media have recently increased. Some researchers focused on the influence of social media on public relations [45], while others focused on social media in the context of travel-related environment and proved that reviews from social media are highly trusted [56]. Although user generated contents via social media could be faked by someone with a vested interest, many people think that they can be trustworthy because they are real experiences by real people who are independent [47]. Therefore, social media have served as a new form of word-of-mouth for products/services or providers and have proved to be critical to consumer decision making in e-commerce environments [56].

The term social commerce was introduced by Yahoo! in November 2005 to describe a set of online collaborative shopping tools such as shared pick lists, user ratings and other user-generated content sharing of online product information and advice [55]. Stephen and Toubia [47] defined social commerce as a form of Internet-based social media that allows people to actively participate in the marketing and selling of products and services in online marketplaces and communities. Marsden [33] summarized social commerce as a subset of electronic commerce that involves using social media, online media that supports social interaction and user contributions, to assist in the online buying and selling of products and services. From this definition, we note that there are two key aspects - social interaction and user contributions - for social commerce, which are derived from social media characteristics.

Social interaction can be interpreted as ties [53] or social interaction ties [50]. It comes from the social capital theory and has been manifested as the structural dimension of social capital [36]. Social interaction refers to a link established via reciprocity behavior between two actors [52]. It describes the linkages between people or units, and this is facilitated by social media [16]. In the social media context, all activities that actors participate in are based on the social media interaction ties. They have an impact on knowledge transfer because social media interaction ties provide channels for information exchange and facilitate them [53]. This can be also applied to the context of social commerce. Thus, social media interaction ties can play an important role in encouraging users to interact more and thereby making the transaction more social.

User contributions refer to users’ participation in social media. Commitment is defined as a psychological construct representing the desire and resolve to continue participation [42]. Considering that a lot of people keep using social media, we can expect that the stronger the users’ commitment is, the more the users’ contributions are. In the social capital theory, commitment has been manifested as the relational dimension of social capital [53]. It has been shown to affect both attitudes [57] and future purchase intention [54]. Commitment to a website has been found as a key construct to impact online purchase attitude [43] and virtual community commitment was also considered to be important to brand loyalty and consumer behavior [24].

2.2 User behavior between different contexts

Many studies on user behavior have been conducted on user adoption and acceptance, based on such theories and models as the theory of reasoned action [44], the theory of planned behavior [1], the technology acceptance model [13] and the unified theory of acceptance and use of technology [51]. Most researches have focused on the usage behavior in isolation, while some studies have examined the relationship of system usage between different contexts, demonstrating that user behavior in one context could affect user behavior in another related context by transferring attitude toward systems from one context to another [32]. Some research also found that early usage of an IT system may influence post usage intention of others in the future [26]. Considering that systems and platforms are increasingly integrated, it is necessary to pay attention to the relationship of user behavior between different contexts.

Stewart [48] used entitativity to explain trust transfer between different targets. Song et al. [46] applied entitativity to illuminate the usage behavior transfer between technologies in different contexts. Entitativity refers to the degree to which a collection of individual entities is perceived as being bonded together in a coherent group [8]. It is considered to be an important dimension based on which groups are compared, and perceptions of entitativity strongly influence one’s impression formation towards information from individuals or groups [34], which in turn determines the information-processing mechanism [46]. Since a group has been considered as a collection of entities [30], social media users in a social
network can also be thought of as a group. According to Lickel et al. [30], social interaction in a group can cause perceptions of entitativity. This means that a social network group with high-level of social interaction will also have strong entitativity that influences group members’ impression formation and information processing, which in turn has an impact on their perception and attitude.

2.3 Social impact theory and social influence

The social impact theory suggests that an individual’s feelings, attitudes and behaviors can be influenced by the presence of others [29]. Social impact means any of the great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behavior, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of the other individuals [29]. In this study, we briefly define the social impact as any kind of subjective attitude or behavior changes by the impact of others. Latane [28] updated it to the dynamic social impact theory and viewed society as a self-organizing complex system in which individuals interact and impact each others’ beliefs. In the social impact theory, the impact of any information source is a function of three factors: strength, immediacy and number [29]. Strength refers to the importance or social position of the source. Immediacy refers to time or closeness between source and target. Number refers to the quantity of sources. These three dimensions were all proposed to positively affect individual’s attitudes and behaviors in the offline environment [35].

According to the social impact theory, the more important a group is, the closer the distance is between the group and oneself; therefore, the more likely it is for one to conform to the group’s normative pressures [29]. This kind of social pressure is considered as normative social influence [31]. Normative social influence refers to conformity to the expectations of another person or group and creates social pressure for people to adopt a product or a service because people not adopting the product may be treated as ‘old fashioned’ regardless of the individual’s preference toward the product [27]. The normative social influence is reflected in individuals’ attempts to comply with the expectations of others to achieve rewards or avoid punishments, and it operates through the process of compliance [4]. For example, the greatest normative social influence is usually exerted with primary reference groups like family [12].

However, not all social influences occur due to group normative pressures. In contrast to the normative social influence, an influence would also be internalized if it were perceived as enhancing an individual’s knowledge about his or her environment or improving his or her ability to cope with some aspect of it. This is called informational social influence [14]. Informational social influence means influence to accept information obtained from another as evidence about reality [14]. Informational social influence may occur in two ways. Individuals may either search for information and knowledge from others or make inferences based upon the observation of the behavior of others [38]. It has been found to affect the consumer decision processes regarding product evaluations [7]. In the online environment, the informational social influence is also found to affect consumer decision making and can be considered as a learning process through which people observe the experience of early adopters in their social network and decide whether or not to buy a new product [27].

These two social influences have different goal orientations. The normative social influence relates to self-maintenance and compliance, while the informational social influence is associated with knowledge [7]. In other words, the normative social influence means that people are influenced by group compliance and the informational social influence indicates that people are influenced by knowledge and evidence. These two kinds of social influences have been proved to affect consumer behavior both offline [7] and online [27]. Compared with past times, where individuals’ influence is limited due to their narrow social circle, in the Internet with social media, individuals’ influence is broader and stronger, making it more important to their lives.

3. Research model and hypotheses

To examine user behavior in the context of social media and e-commerce, we next develop our research model and hypotheses.

Normative social influence is the influence of other people that leads us to conform in order to be liked and accepted by them [2]. It exists in any kind of groups and has been proved that normative social influence can be amplified in computer-mediated communication [41]. In a social network group, social media interaction ties,
the links between people, provide channels to help transfer the normative social influence to group members. Social media facilitates social interaction, thereby enhancing this channel [16]. The more channels there are, the greater the influence that people can get from the social network group. In other words, more social media interaction ties can bring higher group pressure and lead one to conform to the group. Thus, social media interaction ties can be proposed to affect normative social influence, so we propose:

**H1a**: Social media interaction ties will positively affect normative social influence.

As discussed before, informational social influence relates to knowledge [7] that means people are influenced by knowledge and evidence. Social media interaction ties have been proved to positively affect knowledge exchange and sharing [50]. Similar to the normative social influence, social media interaction ties provide information exchange channels, and knowledge can be spread by this channel. In a social network group, people with more links are easier to get more knowledge, causing informational social influence. Therefore, we propose:

**H1b**: Social media interaction ties will positively affect informational social influence.

Normative social influence is one form of conformity, which is related to the group’s social norms [4]. In an online environment, the premise of getting the social norms of a group is to keep participating in online activities. We define social media commitment in this study as the users’ desire to continue one’s association with social media. If one keeps on using social media, which means a high commitment to social media, then one is more likely to be influenced by the group’s social norms. Hence, we propose:

**H2a**: Social media commitment will positively affect normative social influence.

A user’s commitment to social media means that he or she frequently participates in interacting through social media. Because social media has been a powerful information source [25], one with higher social media commitment can receive an amount of information that can be considered as evidence or knowledge when he or she needs to make a decision. That is to say, social media commitment brings more opportunities to obtain information or knowledge, and thereby users with a high level of social media commitment are more likely to get informational social influence. Thus, we propose:

**H2b**: Social media commitment will positively affect informational social influence.

Normative social influence could affect one’s behavior intention [27]. Visiting a website, which also belongs to a kind of online behavior, will also be affected by the normative social influence. For example, if most of your friends have a Facebook account, then you will also search and visit the Facebook website to find what it is to avoid being called ‘old fashioned’. Especially website links could be conveniently shared or found on the Internet and what one needs to do is just a click away. It is easy for one to be compelled by others to visit a website. In the e-commerce context, if most of your friends have visited a website to look for or buy a product, then you will also intend to visit that website to see the same product. Thus, the following hypothesis is proposed:

**H3a**: Normative social influence will positively affect visit intention of e-commerce.

People tend to follow the choices of others rather than making their judgment by themselves when they face overwhelming information online [6]. It is easy for people to find others’ reviews about a product on the Internet. Especially in a social network group, people can find what others are doing and the choices of the majority. As members of the same group, they can be easily affected by the others’ choices because of the trustworthiness of social media members. Moreover, the normative social influence occurs when individuals make decisions to gain approval from other group members. Users can comply with the opinions of group members to purchase a product, which means normative social influence has a direct influence on purchase intention. In addition, subjective norm, similar to normative social influence, has been considered as an important factor affecting consumer behavior according to the theory of reasoned action [1][31]. Thus, we propose:

**H3b**: Normative social influence will positively affect purchase intention of e-commerce.

Informational social influence is based on
reality and evidence [4]. It has been proved to influence people’s attitudes and behavior in the online environment [27]. Whether or not to visit a website can be affected by friends or information online. For example, if one gets a positive comment about a website and there are enough reasons to believe that it is really a good site worth visiting, then he or she may also have the intention to visit it. Thus, we propose the following hypothesis:

**H4a:** Informational social influence will positively affect visit intention of e-commerce.

Informational social influence occurs when individuals make decisions to reach the best possible decision. It was also found to have a positive influence on buyer behavior [7]. When people try to find the best choice, they will also try to get more information or evidence. There is a lot of information about products like reviews or other consumer-generated contents via social media. It has been proved that such information affect the consumer’s purchasing behavior [56]. Consumers take the information as evidence for purchase decision, which means that the informational social influence can affect one’s purchase intention. Thus, we propose:

**H4b:** Informational social influence will positively affect purchase intention of e-commerce.

Visit intention here means one’s intention to visit an e-commerce website. This is a kind of behavior to get more information. According to the buyer’s decision making model [15], getting information is associated with purchasing. Visiting an e-commerce website will probably cause a consumer to be interested in some products. It is the first step of online shopping and important to e-commerce transactions. Pavlou and Fygenson [40] have proved that getting information from a website will positively have an influence on purchasing a product from that web vendor. Therefore, we propose:

**H5:** Visit intention of e-commerce will positively affect purchase intention of e-commerce.

### 4. Research methodology

#### 4.1 Research context

Taobao.com, the largest e-commerce site in China, and Paipai.com, a popular e-commerce site that has the largest instant messenger users in China, have both provided social network services as well, which include blog, microblog, forums, image and video sharing, online social game and other applications. In these sites, the social network service is integrated with an e-commerce system. Users can select whether or not to share a transaction when they engage in the transaction. If they choose to share it, then the transaction record, product link and also the reviews of that product are shown on the social network homepage and friends can see and comment on the transaction. Blog, microblog and variety of web applications are provided to enhance the users’ interaction, and the transaction records and reviews are transferred within this social network as a link. Users are encouraged to share their transactions with points and coupons. In this process, the users’ online shopping activities become more social. It indicates that social media might play an important role in the online shopping behaviors of consumers.

#### 4.2 Measure

As the proposed research model shows, in this paper, the following six constructs were involved: social media interaction ties, social media commitment, normative social influence, informational social influence, visit intention of e-commerce and purchase intention of e-commerce. The social media interaction ties were adopted from Chiu [10], and the social media commitment was developed from Garbarino and Johnson [18]. For normative social influence and informational social influence, the measures were adopted from Bearden and Netemeyer [4]. We developed visit intention and purchase intention measures from Pavlou [39]. The questionnaires used five-point Likert scales and consisted of 35 items that measured the respondents’ perceptions.

#### 4.3 Data collection

After the instrument was completed, we conducted an online survey at a professional survey website. The questionnaire was only aimed at the one who had experiences in shopping on Taobao.com or Paipai.com, which have social network services as well. Finally, 321 responses were collected in one week. We performed an initial screening for usability and reliability. Respondents that filled out the questionnaire.
within less than 3 minutes were removed because completing the questionnaire needed at least 5 minutes. Respondents with zero times of shopping frequency within a month and some responses with obvious mistakes were also removed. In the end, 233 responses were found to be complete and usable.

82.4% of the respondents were between 20 and 30 years old. This is consistent with the fact that young people are the most active Internet users in China [11]. 40.4% of the respondents are company employees and most of them are at a non-management level. On average, they have a working experience of 4 years. University education level takes 80.7% of the respondents, and the respondents have 7 years of Internet experience and 2.5 years of online shopping experience on average. Nearly all the respondents are from Taobao.com. This is also consistent with the report that Taobao.com took over 80% of the market share and Paiapai.com took only 5% of the e-commerce market share in China [23].

5. Data analysis

Collected data were analyzed by a two-step methodology using LISREL [3]. We first examined the validity of the constructs and then tested the structural model based on the cleansed measurement model.

5.1 Measurement model

We conducted confirmatory factor analysis to evaluate the measurement model. In order to assess the reliability and convergent validity of our measurement model, we needed to check the factor loadings, the Cronbach’s $\alpha$, the composite reliability (CR) and average variance extracted (AVE), as shown in Table 1 [20]. We removed items whose loading values were lower than 0.7 [9]. Hence, SM11, SMC2, ISI5, and NSI1 were eliminated. Then, we also sequentially removed three items whose standardized residuals values were too large [19]. The Cronbach’s $\alpha$ ranged from 0.736 to 0.883 and the composite reliability of our measurement ranged from 0.833 to 0.918. These were all larger than 0.7, which means being acceptable [20]. The average variance extracted of our measurement ranged from 0.556 to 0.789, which was above the recommended threshold of 0.5 [17]. Therefore, we had established convergent validity for the measurement model.

Furthermore, the square root of the AVE for each construct and the correlations between that construct and other constructs were compared, as shown in Table 2, to test discriminant validity [17]. The square root of the AVE for each construct was greater than the correlations between that construct and the other constructs, which meant we had established discriminant validity for the measurement model. Hence, we could proceed to the structural model analysis.

5.2 Structural model

The structural model, including the research hypotheses and the causal paths, was examined using the cleansed measurement model. Figure 1 shows the standardized LISREL path coefficients of the research model.

The normed $\chi^2$ ($\chi^2$ to degree of freedom) was 3.156, which was not good but could be mediocre.
accepted [5]. The root mean squared approximation of error (RMSEA) was 0.085 lower than 0.1, which was also mediocre fitted [21]. Root mean square residual (RMR) was 0.059 lower than 0.08, which still could be accepted [5]. Goodness of fit index (GFI) was 0.824 that was above the recommended threshold of 0.8 [20]. The other fit indices were all satisfactory that normed fit index (NFI) was 0.917, nonnormed fit index (NNFI) was 0.931 and comparative fit index (CFI) was 0.941. These results suggest that the structural model fitted the data adequately. Social media interaction ties and social media commitment positively influenced normative social influence and informational social influence and explained 33.1% and 29.8% of each variance respectively. Normative and informational social influence were positively related to visit intention of e-commerce, which explained 44.4% of its variance in visit intention of e-commerce. Informational social influence and visit intention were positively associated with purchase intention of e-commerce and explained 33.6% of its variance in purchase intention. However, normative social influence did not have a positive impact on purchase intention of e-commerce (path coefficient = -0.240, t-value = -3.157).

![ LISREL Results Diagram](image)

**Figure 1. LISREL Results**

### 6. Discussion

This study attempts to investigate how social media affects e-commerce. For the purpose of doing this, we proposed a theoretical research model that consisted of social media factors (social media interaction ties and social media commitment), social impact transfer factors (normative social influence and informational social influence) and e-commerce factors (visit intention of e-commerce and purchase intention of e-commerce), which sequentially have causal relationships. The empirical results showed that all hypotheses were supported except for H3b (normative social influence → purchase intention of e-commerce).

There are two questions to be discussed about the findings. First, how does informational social influence transfer in different context? As discussed before, the informational social influence means influence by knowledge and information as evidence [7]. Users in the online social network share and receive information by online links. In other words, information and knowledge are constantly transferred in social networks; this means that social media users could get more information and knowledge. This indicates that the possibility of being influenced is also higher. Just as Pavlou and Fygenson [40] have proved, getting information is the first step of purchase and could positively influence the purchase intention. Therefore, social media affects getting information and knowledge transfer, which in turn enhances the influence of the information or knowledge (i.e., informational social influence), and finally influences online shopping behavior. That is to say, informational social influence is transferred from a social media context to an e-commerce context. Hence, social media has a high informational social influence, which affects the users’ online behavior such as visit intention and purchase intention in e-commerce.

The other question is why normative social influence does not affect purchase intention in e-commerce but informational social influence does? Normative social influence relates to the influence of group compliance [7]. Compliance only occurs when a user conforms to the expectations of another to receive a reward or avoid rejection and hostility [22]. Because the social network of users is built on the users’ own social relationships, there are none strict group norms or rewards or punishment. For example, when a user finds that most of his or her friends in social media have purchased a product and have posted a good comment about it, it does not mean that he or she has to purchase that product for the reason of group compliance. One can be attracted to purchase the product but not comply to purchase it. Users are rational to accept information as evidence. Therefore, the informational social influence is more important to determine the users’ behavior in e-commerce context compared with the normative social influence.
7. Implication

The results of this study offer several implications for both researchers and practitioners. For researchers, first of all, we developed a research model in terms of both social media and e-commerce. It can be extended into a research model of social commerce as well. We connected social media context and e-commerce context from the social impact transfer perspective, which helps explain how social media affects e-commerce. Considering that social media and social commerce have recently been hot issues and more and more researchers are paying attention to them, our research model provides a theoretical starting point for researchers who are interested in further studying social media and social commerce.

Second, this study developed and proposed social media interaction ties and social media commitment as two antecedent measurements of social impact. People’s relationships in social media are all built on their social networks. Social media interaction ties focus on how many relationships there are in one’s social network and describe the width of the social network. Social media commitment focuses on how strong one’s social network relationships are and describes the depth of the social network. With both width and depth, we can fully reflect the characteristics of a social network.

Third, the findings also give some theoretical insights to social commerce studies. In our studies, users’ behaviors were found to be more affected by group information but not group norms in the combined environment of social media and e-commerce. Because social media tends to play a role as a many-to-many information channel enhancing information spread, the users in social media and its related e-commerce website may be easily influenced by that information. This means that researches on users’ behavior in the combined context of social media and e-commerce should pay more attention to the informational aspects that help users make the right decisions, rather than the normative aspects that have been emphasized in the prior researches with a single view of social media context.

Fourth, our research also revealed factors that can be transferred between the social media context and e-commerce context from the social impact theory perspective. Although previous researches have noted the importance of both normative social influence and informational social influence, there were few studies that were focused on transferring roles in different contexts. This study indicated that social media affect e-commerce by means of transferring the social impact. Considering that information systems are increasingly integrated now, we suggest that studies on users’ behavior in different contexts are more needed in the future, and this study provides a good starting point to the researchers who are interested in those topics.

This research also provides some practical implications. First of all, for e-commerce managers, according to our findings, we suggest that e-commerce managers need to directly develop social media based applications or collaborate with other popular social media websites to enhance the users’ social interactions and make the transactions more social. In doing so, e-commerce websites should try to encourage users, especially expert users, to share information about their shopping experiences and knowledge. Users’ interactions with each other will make social media richer and help diffuse the product information. Because of the informational social influence was found to be more powerful, our results also suggest that e-commerce managers provide more information and knowledge about products to help users select products.

Second, for social media managers, as we have discovered, this study proposes that the informational social influence embedded in social media is very powerful in affecting one’s online behavior. We suggest that social media managers provide more interesting applications and hold more activities to attract users in order to keep participating in social media. Managers should also try to help users find more good friends to widen their social relationships. Meanwhile, they should also encourage users to share their experiences or interact with others to deepen their relationships. Because the users’ abundance of social relationships and commitment to social media tend to have a great influence on their behaviors, we suggest that managers should explore more business value in the field of social media. For example, they might want to collaborate with other e-commerce websites or companies.

Third, the results also reveal implications for other practitioners. Because social media play an important role in providing valued information and helping users interact with each other, its business values can be further explored. Our study suggests that companies take social media as a tool to enhance the connection of staffs and enhance internal knowledge sharing. It is efficient but has
low-cost to build and maintain. We also suggest that companies use social media to communicate with their customers and provide more information and knowledge about their products. Moreover, companies can also encourage their customers to interact with each other through social media. In this process, companies can not only diffuse their information easily but also get users’ feedback information instantly.

8. Conclusions

Considering that social media has been widely used in recent years, this paper investigated the influence of social media based on normative social influence and informational social influence in the context of Chinese e-commerce from the social impact theory perspective. We reviewed some former studies and proposed hypotheses based on them. Through an online questionnaire survey, we collected data from the largest e-commerce websites with social network services in China. We tested the research model using the structural equation modeling by LISREL. The results showed that social media interaction ties and social media commitment positively affect normative social influence and informational social influence. The last one in turn influence visit intention and purchase intention in e-commerce. Overall, this study provides a theoretical and practical insight into usefulness of social media in the e-commerce environment.

References