

# The Effects of Scarcity Messages and Impulsivity on Customers' Rational Purchase Decision-Making Process in Group-buying Social Commerce

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## ABSTRACT

This study attempts to extend the customer value – customer satisfaction – customer loyalty framework by introducing key constructs of scarcity messages as a major environmental stimulus and the urge to buy impulsively as its response in the context of group-buying social commerce, across countries including Korea and China. More specifically, this study proposes that scarcity messages influence customers' value perception (i.e., utilitarian value and hedonic value) and thereby influencing customer satisfaction and further customer loyalty. Moreover, the study suggests that scarcity messages and utilitarian and hedonic values arouse the urge to buy impulsively.

In the Korean sample, the results show that scarcity messages increase both utilitarian and hedonic values as well as the urge to buy impulsively, which in turn leads to customers' satisfaction and further loyalty. Besides, customer satisfaction is determined by utilitarian value, not hedonic value. In the Chinese sample, utilitarian value-related relationships are insignificant. More specifically, scarcity messages only influence hedonic value which increases the urge to buy impulsively. Besides, customer satisfaction is determined by both utilitarian and hedonic values, but not by the urge to buy impulsively.

*Keywords:* Group-buying Social Commerce, Scarcity Messages, Urge to Buy Impulsively, Utilitarian Value, Hedonic Value, Customer Satisfaction, Customer Loyalty

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## I .Introduction

Social commerce along with the spread of social networking sites (SNSs) such as Facebook and KakoStory (i.e., the most popular smartphone-based

SNS in Korea) has been settled as one of the key types of electronic commerce (e-commerce) (Liang et al., 2011-12). The prominent characteristic of social commerce is to utilize customers' social networks for commerce activities which include social interactions

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and voluntary participation such as word-of-mouth and the sharing of product or discount information via SNS (Liang et al., 2011-12). The most popular type of social commerce is a group-buying social commerce in Korea and China (Choi, 2016; Song et al., 2015; Wen, 2013; Zhang et al., 2018).

It has been generally argued that customers in electronic commerce seek to make a rational decision by searching the best alternative through the comparison of products and prices online. Lam et al. (2004) have proposed the theoretical framework of customer value - customer satisfaction - customer loyalty in the context of B2B service, based on the process of cognition - affect - behavior (Lazarus, 1991). Cognition refers to customers' belief through thinking whereas affect refers to their positive or negative feelings on stimuli and events of products. Following the assertion that cognitive thinking arouses affective responses, it is argued that customer value leads to customer satisfaction and thereby affecting customer loyalty. Customer value denotes the cognitive evaluation of costs spent for and benefits obtained from products or service whereas customer satisfaction denotes the positive, affective state as an outcome of evaluating the products or service. Thus, online shoppers attempt to make a rational decision based on cognitive and affective evaluation.

On the contrary, many studies point out customers' impulse buying i.e., an unplanned purchase, in online shopping which is triggered by an exposure to external stimuli (Childers et al., 2001; Madhavaram and Laverie, 2004; Parboteeah et al., 2009; Wu et al., 2021; Zhang et al., 2018). Customers are easily exposed to various stimuli such as pop-up ads, price-comparison search engines, and images and video clips. This raises a question of how online impulse buying is associated with customers' rational decision making. Furthermore, there is another question of what factors cause online impulse buying in the context of group-buying social

commerce.

Drawing on the framework proposed by Lam et al. (2004), this study explains customers' rational purchase process in which customer value influences customer satisfaction and thereby builds customer loyalty in group-buying social commerce. Furthermore, the study extends the framework by integrating the issues of online impulse buying and scarcity messages which characterize group-buying social commerce. More specifically, scarcity messages denoting a significant discount for a limited time only or for a limited quantity only are being widely used as a typical promotion strategy to attract customers in group-buying social commerce (Choi, 2016; Wu et al., 2021). Although scarcity messages have long been considered a major factor influencing customers' purchase intentions and actual behaviors (Agarwal et al., 2011; Brock, 1968; Choi, 2016; Chou, 2019; Li et al., 2021; Lynn, 1991; Wu et al., 2021), there is a need to further understand how scarcity messages influence customers' rational purchase decision-making process, based on a well-developed theoretical framework.

Another purpose of this study is to verify whether scarcity messages as an environmental stimulus arouse the urge to buy impulsively in group-buying social commerce. Online impulse buying has been a key issue in e-commerce in that customers are easily exposed to many environmental stimuli. In the same vein, the frequent exposure to scarcity messages in group-buying social commerce sites is likely to increase the urge to buy impulsively (Chan et al., 2017; Li et al., 2021; Wu et al., 2021). However, the relationship of scarcity messages and the urge to buy impulsively is not fully explained.

Finally, this study examines whether there are differences in the proposed hypotheses between Korean and Chinese customers. China is geographically close and a major market for Korean products and services. It

is common that Korean products are selling in Chinese social commerce sites, and vice versa. Considering that cross-border electronic commerce is expanding, it is necessary to grasp differences in customers' purchase decision-making process. Previous studies found that there are various differences in Korean and Chinese customers, such as key determinants of customer satisfaction in open markets (Guo and Ahn, 2013), trust building in mobile commerce (Zhang and Um, 2019), and decision-making process for purchasing in online shopping (Sen and Jang, 2017). Under the circumstances, this study examines how scarcity messages as an external trigger in group-buying social commerce influence customers' impulsivity and the rational decision-making process for purchasing across two countries.

## II. Literature Review

### 2.1. Group-buying Social Commerce

Group-buying social commerce is the most popular type in Korea and is currently dominated by three group-buying social commerce sites such as Coupang, We-Make-Price, and Ticket-Monster in market-share order since it started in 2010. It is generally known that group-buying social commerce represents social commerce. In China, Meituan has become the largest social commerce site which runs the group-buying program since it was founded in 2010 (Wen, 2013). Meituan started off as a Groupon clone. Meituan connects local companies with online consumers by offering the best group-buying deals daily. Local merchants through Meituan offer their products at a discounted price up to 80% off. Likewise, Meituan serves as a platform for group-buying social commerce focusing on localized service such as local restaurants, ho-

tels, spa and massage service, and so on.

Nowadays, people expect that they could buy products at a substantial discount through group-buying social commerce (Busalim and Hussin, 2016). At the beginning, group-buying social commerce sites used the promotion strategy with a discounted price by encouraging customers to conduct viral marketing via their SNSs (Busalim and Hussin, 2016). When the number of potential buyers reaches a certain sales target during a certain period, sellers provide buyers with the product/service at a substantial discount (e.g., more than 50 percent). To receive a substantial price discount by achieving the targeted quantity of sales, people voluntarily attempt to gather potential buyers and share the purchase information with many friends registered on their SNS. More recently, social commerce sites are widely using the promotion strategy that appeals to customers with several incentives. That is, when potential buyers become a new member of social commerce sites introduced by extant members during a certain promotion period, the sites offer various, big discount coupons to the extant members. It is common that sellers in social commerce provide a limited number of certain products at discounted prices within a pre-set period, namely a quick-returns policy.

### 2.2. Urge to Buy Impulsively

Impulse buying in retail stores has already received much attention in the marketing literature over time (Clover, 1950). Generally, impulse buying is defined as an unplanned purchase which is triggered by an exposure to external stimuli (Childers et al., 2001; Madhavaram and Laverie, 2004; Parboteeah et al., 2009; Rook, 1987; Wu et al., 2021; Zhang et al., 2018). Stimuli include sales promotional devices deployed in a store (Applebau, 1951), actual products and product characteristics (i.e., hedonic components), adver-

tisements (Rook, 1987), and shopping environments (Childers et al., 2001). Online impulse purchase frequently occurs in e-commerce because customers are easily exposed to various external stimuli. Despite many studies of impulse buying, Madhavaram and Laverie (2004) and Wu et al. (2021) assert that there is still a need to develop better understanding of online impulse purchasing in that customers are more likely to be impulsive than in retail stores.

In this study, the concept of the urge to buy impulsively, instead of actual impulse buying is introduced and defined as “the state of desire that is experienced upon encountering an object in the environment (Beatty and Ferrell, 1998).” According to Rook (1987), the urge to buy impulsively must precede the actual impulse buying. Besides, not all impulsive urges lead to actual purchases, however the possibility of impulse buying increases (Beatty and Ferrell, 1998). Actual purchases can be motivated by many factors such as a product in itself (McGoldrick et al., 1999) and customers’ mood or emotional state (Beatty and Ferrell, 1998; Rook, 1987). For example, customers’ positive mood augments the urge to buy impulsively. In fact, the urge to buy impulsively is considered as a proxy for impulse buying (Dutta et al., 2003). Furthermore, in e-commerce, the urge to buy impulsively is more effective than actual impulse buying in explaining impulsivity (Beatty and Ferrell, 1998; Parboteeah et al., 2009; Wells et al., 2011).

In the context of e-commerce, researchers have attempted to identify key determinants of impulse buying or the urge to buy impulsively, emphasizing website characteristics (Parboteeah et al., 2009; Wells et al., 2011) and environmental stimuli (Chan et al., 2017; Chen et al., 2016; Xiang et al., 2016; Zhang et al., 2018; Zhang et al., 2021). In the context of e-commerce, Parboteeah et al. (2009) proposed two types of website characteristics as environmental stim-

uli, such as task-relevant cues (i.e., navigability) and mood-relevant cues (i.e., visual appeal) and examined the effects of those on customers’ internal reactions (i.e., usefulness and enjoyment) causing the urge to buy impulsively. Wells et al. (2011) verified that website quality as an environmental stimulus increases the urge to buy impulsively in e-commerce.

Drawing on the stimuli-organism-response (SOR) model, the review of Chan et al. (2017) found that online impulse buying behavior is a response of organism (i.e., cognitive and affective reactions) which is influenced by external trigger (i.e., website, marketing and situational stimulus) and internal trigger (i.e., impulsive consumer characteristic). In the context of a C2C Facebook group, Chen et al. (2016) proved that textual information quality and the number of “Likes” leads to the urge to buy impulsively. Applying the SOR model, Xiang et al. (2016) argued that consumers’ impulse buying behavior as a response in social commerce is determined by three organisms such as cognitive reaction (i.e., usefulness), affective reaction (i.e., enjoyment) and parasocial interaction which are reactions of environmental stimuli. Zhang et al. (2018) argued utilitarian and hedonic values trigger browsing which is an antecedent of the urge to buy impulsively. Zhang et al. (2021) considered perceived enjoyment and social interaction as determinants of impulse buying in electronic commerce. Thus, we propose that customers’ urge to buy impulsively is a function of their cognitive reaction (i.e., utilitarian value) and affective reaction (i.e., hedonic value) as environmental stimuli.

### 2.3. Scarcity Messages

The concept of scarcity is proposed by the commodity theory that explains “any commodity will be valued to the extent that it is unavailable (Brock, 1968).”

As the unavailability of a product increases, people tend to perceive higher value of it (Lynn, 1991). The effect of scarcity on the perception of value has been verified through many studies (Aggarwal, et al., 2011; Chan, et al, 2017; Choi, 2016; Eisend, 2008). Nowadays, retailers attempt to enhance customers' perceived value of products by manipulating their availability, such as producing their limited editions, distributing them through limited outlets only, and restricting purchase order sizes.

Most studies of scarcity messages seek to prove how they are associated with customers' purchase intentions through experimental studies (Aggarwal and Vaidyanathan, 2003; Aggarwal et al., 2011; Eisend, 2008; Knishinsky, 1982). Through an experiment study, Knishinsky (1982) proved the positive effect of scarcity messages on customers' purchase. Respondents who were provided with the scarcity message that beef will be sold out soon purchased double the amount of beef in comparison with those who were not provided the message. Aggarwal and Vaidyanathan (2003) verified that limiting the period of promotional offer leads to increased sales. Under the limited-time purchase condition, respondents are more willing to buy the product and decrease the intentions to search further in future. Aggarwal et al. (2011) divided scarcity messages into two types such as limited-quantity and limited-time and examined its individual effect on customers' purchase intentions. They found that limited-quantity scarcity messages were more influential than limited-time scarcity ones. Essentially, limited-quantity messages include a time limit in that customers should hurry up to purchase the product with limited quantities, and therefore they feel time pressure simultaneously.

In the context of group-buying social commerce, scarcity messages are commonly used as a typical promotion strategy to activate customers' purchasing intentions and actual purchase (Choi, 2016; Chou, 2019). Social commerce sites use scarcity messages emphasize

ing that a certain product is offered at a significant discount for a limited time only and/or as a limited quantity only. Customers are exposed to various scarcity messages such as "limited time only," "limited one per customer," "only while supplies last," or "limited release (Eisend, 2008)." The reason of using scarcity messages is that customers give more favorable evaluation on a product with limited availability (i.e., scarcity) (Eisend, 2008). Furthermore, because customers are able to buy a product for a limited time only, they have the tension of hastening a purchase.

The positive relationship of scarcity messages and purchase intentions has been well established through many experimental studies in a variety of settings. Agarwal et al. (2011) verified that scarcity messages increase purchase intentions of a product, reduce the searching time for the purchase, and lead to positive post-evaluation of the purchase. Chou (2019) contended that countdown time units influence group-buying participation intentions in the case of hedonic products rather than utilitarian products. Likewise, previous studies pay attention to the positive effect of scarcity messages on purchase intentions.

Therefore, there is a need to develop the elaborated model that can explain how scarcity messages influence customers' purchase decision-making process, based on a well-developed theoretical framework. That is, it is expected that scarcity messages are closely related to key concepts pertinent to customers' purchase such as customer value perception, customer satisfaction, and customer loyalty, particularly in the context of group-buying social commerce where scarcity messages are commonly used.

#### 2.4. The Customer Value - Satisfaction - Loyalty Framework

Drawing on the cognition-affect approach (Lazarus,

1991), Lam et al. (2004) proposed the customer value (cognition) - satisfaction (affect) - loyalty (behaviour) framework in the context of B2B electronic commerce. That is, customer value leads to customer satisfaction and thus enhances customer loyalty. Customer loyalty is considered as a behavioural variable which describes a buyer's willingness of maintaining the relationships with a seller in future by purchasing products repeatedly and by recommending them to others (Dwyer et al., 1987). Customer satisfaction refers to an affective and evaluative response (Oliver, 1993). Customer value as a cognition-based construct is a result from the overall evaluation of benefits obtained and sacrifices spent from purchasing products (Holbrook, 1999). Customer satisfaction is dependent on customer value in the framework.

Customer value is further divided into two forms such as utilitarian and hedonic values (Chitturi et al., 2008; Hirschman and Holbrook, 1982). The former refers to "the functional, instrumental, and practical benefits of consumption offerings" whereas the latter refers to "the aesthetic, experiential, and enjoyment-related benefits (Chitturi et al., 2008). Chitturi et al. (2008) assert that utilitarian and hedonic benefits evoke different types of emotions (i.e., promotion and prevention emotions) which are related to dissatisfaction and satisfaction and thereby affecting customer loyalty.

In the same vein, IS researchers assert that users seek to two types of values in the consumption of new information technologies. That is, utilitarian value is typically explained as the construct of usefulness proposed in TAM (Davis, 1989) whereas hedonic value is explained as that of enjoyment proposed in the context of hedonic IS consumption (van der Heijden, 2004). Therefore, in this study, we consider utilitarian and hedonic values as shopping values that customers seek to obtain in group-buying social commerce.

### III. Research Model and Hypotheses

#### 3.1. Research Model

The proposed model extends the customer value - satisfaction - loyalty framework (Lam et al., 2004) by integrating the issues of scarcity messages and the urge to buy impulsively in the context of group-buying social commerce where scarcity messages are commonly used as a promotion strategy. Based on the assertion that scarcity influences customers' value perception (Lynn, 1991), this study posits that scarcity messages act on customers' value, which in turn affects customer satisfaction and customer loyalty ultimately. By doing so, this study could explain how scarcity messages and online impulse buying are associated with customers' rational decision making.

According to the stimuli-organism-response model (Chan et al., 2017; Parboteeah et al., 2009; Wu et al., 2016; Xiang et al., 2016), it is expected that scarcity messages as a key environmental stimulus in group-buying social commerce trigger customers' cognitive reaction (i.e., utilitarian value) and affective reaction (i.e., hedonic value) as well as the urge to buy impulsively as a response. Although the frequent exposure to scarcity messages is closely related to the issues of impulse buying (Chan et al., 2017; Li et al., 2021; Wu et al., 2021), there is a lack of empirical studies considering both issues at the same time. For example, in the context of group-buying social commerce, Choi (2016) verified the effect of scarcity messages on customers' shopping value, but did not consider the issue of impulse buying. In the same context, Zhang et al. (2018) only considered the issue of impulse buying, focusing on the mediating role of browsing in the relationship of customer value and the urge to buy impulsively. Yang et al. (2021) concentrated on the relation between customer value

and the urge to buy impulsively in mobile commerce. In the online market, Wu et al. (2021)'s recent study simultaneously considered scarcity messages, personal impulsiveness and impulse purchase, but the direct relationship of scarcity messages and the issues of impulse buying was not proved. The review of Chan et al. (2017) showed that product availability as one of the marketing stimuli is a predictor of cognitive and affective reactions, and thereby arousing online impulse buying. Thus, this study proposes that scarcity messages are a trigger of the urge to buy impulsively as well as utilitarian and hedonic values.

Finally, based on the proposed model, this study explains how scarcity messages as an external trigger in group-buying social commerce influence customers' impulsivity and the rational decision-making process for purchasing across two countries i.e., Korea and China. <Figure 1> shows the hypothesized relationships in this study.

### 3.2. Customer Value - Satisfaction - Loyalty

Based on the studies of Lam et al. (2004), Chitturi et al. (2008), and Choi (2016), this study proposes

the following hypotheses. More specifically, customer value is an antecedent of customer satisfaction, which leads to higher customer loyalty. Customer satisfaction depends on the overall evaluation of utilitarian benefits (e.g., discount price) and hedonic benefits (e.g., fun and pleasure) that customers are anxious to obtain from group-buying social commerce. Furthermore, satisfied customers are more willing to maintain the relationships with social commerce sites in future.

*H1a: Utilitarian value is positively associated with customer satisfaction.*

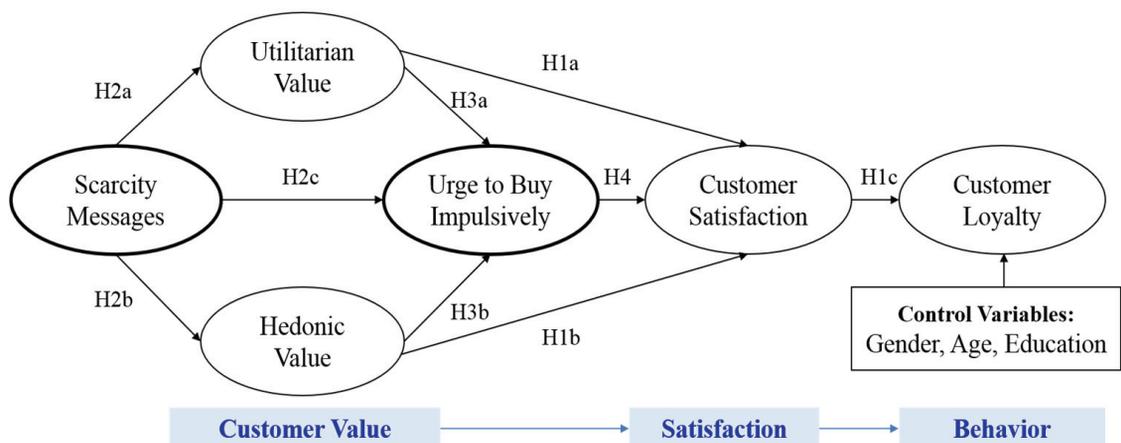
*H1b: Hedonic value is positively associated with customer satisfaction.*

*H1c: Customer satisfaction is positively associated with customer loyalty.*

### 3.3. Integrating Scarcity Messages and Urge to Buy Impulsively into the Customer Value - Satisfaction - Loyalty Framework

#### 3.3.1. Scarcity Messages and Customer Value

The positive effect of scarcity messages on custom-



<Figure 1> Conceptual Research Model

ers' perception of shopping value has long been argued in various circumstances (Eisend, 2008; Lynn, 1991). Scarcity enhances customers' perceived value of products and shopping opportunities (Lynn, 1991). Through an experiment study, Eisend (2008) has verified that scarcity messages are an effective advertisement to increase perceived value and thus leads to increased purchase intention. Scarcity effect is theoretically rooted in commodity theory that explains "any commodity will be valued to the extent that it is unavailable" (Brock, 1968). By limiting the availability of a commodity, sellers can increase the perceived value of the commodity (Eisend, 2008).

In group-buying social commerce, scarcity messages are frequently used as a promotion strategy to arouse customers' purchasing intentions by limiting the opportunities that the customers buy products/service at a big discounted price for a limited time only. There are many examples of scarcity messages, such as "limit one per each person," "limited release," "on sale for a limited time," "until the current stock runs out," and so on. By emphasizing the limited availability of buying a certain product/service, sellers seek to enhance buyers' shopping value.

It is asserted that scarcity messages are closely related to economic consumption (Eisend, 2008). Generally, people expect to buy products/service at much cheaper prices through social commerce than any other electronic commerce. Thus, scarcity messages enhance the perception that people can do shopping at a discounted price via social commerce, which is related to utilitarian value. Moreover, scarcity messages could arouse fun and pleasure in the process of shopping, namely hedonic value. In the social commerce shopping, scarcity is a source of enjoyment (Song et al., 2015). In a review study, Chan et al. (2017) suggested product availability as a marketing stimulus is an external trigger of cogni-

tive and affective reactions. Therefore, this study postulates that scarcity messages contribute to creating customers' shopping value that they seek to obtain from the shopping in social commerce sites.

*H2a: Scarcity messages are positively associated with utilitarian value.*

*H2b: Scarcity messages are positively associated with hedonic value.*

### 3.3.2. Scarcity messages and urge to buy impulsively

The urge to buy impulsively often occurs when customers are exposed to an unexpected stimulus (Beatty and Ferrell, 1998; Rook, 1987). In the context of online shopping, people are more easily to experience the urge to buy impulsively (Moe and Fader, 2004; Wu et al., 2021). It is argued that external stimuli leads to one's cognitive and affective reactions and then determines his or her behaviors (Mehrabian and Russell, 1974). Following this idea, Parboteeah et al. (2009) proposed task-relevant cues (i.e., navigability) and mood-relevant cues (i.e., visual appeal) as environmental stimuli and verified that they increase usefulness and enjoyment as two different reactions, thereby influencing the urge to buy impulsively in e-commerce settings. Song et al. (2015) verified that enjoyment is increased by scarcity messages and further enjoyment and scarcity messages stimulate the urge to buy impulsively in the context of purchasing restaurant products through social commerce sites. They also found that a discounted price does not necessarily provoke the urge to buy impulsively. Chan et al. (2017) also suggested there is a direct relationship between external triggers and online impulse buying response. Based on the above dis-

cussion, this study proposes that scarcity messages as an environmental stimulus triggers the urge to buy impulsively in group-buying social commerce. That is, when customers are frequently exposed to scarcity messages in social commerce sites, they are more likely to experience an unexpected, spontaneous desire to purchase products/service. Through scarcity messages, as customers perceive that products/service are available at a big discounted price for a limited time only, they are likely to buy them immediately.

*H2c: Scarcity messages are positively associated with the urge to buy impulsively.*

### 3.4. Customer Value and Urge to Buy Impulsively

This study posits that utilitarian and hedonic benefits obtained from group-buying social commerce increase the urge to buy impulsively. It is generally argued that impulse buying is associated with hedonic motivations such as fun, novelty, and surprise (Hausman, 2000). Previous studies agree that hedonic value representing enjoyment during the shopping process arouses the urge to buy impulsively (Parboteeah et al., 2009; Song et al., 2015). Hedonic components of purchasing function as a trigger of impulse purchasing (Childers et al., 2001; Chou, 2019; Madhavaram and Laverie, 2004; Wu et al., 2016; Yang et al., 2021; Zhang et al., 2021).

On the other hand, concerning the effect of utilitarian value on the urge to buy impulsively, there is no consensus. Parboteeah et al. (2009) and Xiang et al. (2016) did not consider the direct relationship between usefulness and the urge to buy impulsively, arguing that enjoyment determines the urge to buy impulsively. Song et al. (2015) asserted that dis-

counted price, an aspect of utilitarian value, is negatively related to the urge to buy impulsively. In mobile commerce, Yang et al. (2021) verified that hedonic value increases the urge to buy impulsively whereas utilitarian value does not. Zhang et al. (2021) only considered perceived enjoyment as a determinant of impulse buying in electronic commerce.

However, there are claims that both hedonic and utilitarian values positively influence the urge to buy impulsively. Wu et al. (2016) contended that usefulness increases online impulse buying, based on the assertion that an individual's cognitive reaction (i.e., usefulness) to environmental stimuli affects his or her responses such as impulsive buying. Xiang et al. (2016) argued that cognitive reaction (i.e., usefulness) and affective reaction (i.e., enjoyment) arouse consumers' impulse buying behavior in social commerce. Zhang et al. (2018) asserted utilitarian and hedonic values influence the urge to buy impulsively via browsing activities in online group shopping. Following this idea, this study assumes that utilitarian value also could be a trigger of the urge to buy impulsively, considering that online customers seek to achieve the economic goal of shopping through group-buying social commerce. Therefore, this study proposes the following hypotheses.

*H3a: Utilitarian value is positively associated with the urge to buy impulsively.*

*H3b: Hedonic value is positively associated with the urge to buy impulsively.*

### 3.5. Urge to Buy Impulsively and Customer Satisfaction

It is asserted that the urge to buy impulsively leads

to an actual impulsive purchase (Rook, 1987). Although all impulsive urges are enacted, the possibility of an impulsive purchase increases (Beatty and Ferrell, 1998). Furthermore, it is generally argued that an impulsive purchase causes negative outcomes, such as regrets due to the purchase of products/service outside customers' specific shopping goal (Hoch and Loewenstein, 1991). On the contrary, Gardner and Rook (1988) found that an impulse purchase brings about customers' positive moods due to satisfaction of products/service, the relief of impulsive urges. The urge to buy impulsively is an unexpected emotional response to the external information (Parboteeah et al., 2009). While browsing social commerce sites, customers are easily exposed on various information emphasizing scarcity. Further, such information arouses customers' impulsive urge to buy products/service. As discussed the above section, this study proposes that in addition to scarcity message, the urge to buy impulsively is determined by utilitarian and hedonic values based on the cognitive evaluation of outcomes that customers can obtain from group-buying social commerce. That is, customers' impulsive urge to buy is determined by scarcity message as an external stimulus and further the rational evaluation of shopping values. Thus, this study assumes that the urge to buy impulsively leads to favorable evaluation on group-buying social commerce.

*H4: The urge to buy impulsively is positively associated with customer satisfaction.*

### 3.6. Differences in Group-buying Social Commerce across Countries

It is verified that the impact of scarcity messages varies across culture (Jung and Kellaris, 2004). Through a shopping simulation experiment, they

found that the effect of scarcity message on purchase intentions is significant only in a low-context culture, not in a high-context culture. Besides, the consequences of impulse buying would be different depending on culture (Gardner and Rook, 1988). They stated that customers' mood after impulse buying differs across cultural factors, such as spontaneity and self-indulgence culture. That is, if culture represents spontaneity and self-indulgence, people are more likely to feel positive moods after impulse buying than those under the culture where such purchases are sinful. Lee and Kacen (2008) also asserted that customer satisfaction with impulse and planned purchasing decision varies across countries with different culture, such as individualism and collectivism. The difference in cultures determines ones' norms, values, attitudes, and behaviors (Triandis, 1994).

Korea and China are classified as a collectivist culture (Bagozzi and Lee, 2002; Lee and Kacen, 2008). Customers from collectivist countries tend to satisfy with impulse purchasing than those from individualist countries (Lee and Kacen, 2008). Although two countries belong to the collectivism, there would be differences in customers' responses to scarcity messages, online impulse buying, and decision-making process for purchasing, due to different social norms and values of social commerce embedded in each country.

Previous studies found that there are various differences in Korean and Chinese customers, such as key determinants of customer satisfaction in open markets (Guo and Ahn, 2013), trust building in mobile commerce (Zhang and Um, 2019), and decision making process for purchase in online shopping (Sen and Jang, 2017). Therefore, this study proposes the following hypothesis.

*H5: There are differences in the above hypothesized relationships across Korea and China.*

<Table 1> Demographics

Category		Frequency (%)	
		Korea (n=291)	China (n=273)
Gender	Male	128(44.0)	121(44.3)
	Female	163(56.0)	152(55.7)
Age	Twenties	197(67.7)	251(91.9)
	Thirties	58(19.9)	18(6.6)
	Forties	31(10.7)	3(1.1)
	> Fifties	5(1.7)	1(0.4)
Education	High school	22(7.6)	26(9.5)
	University student (current)	111(38.1)	138(50.5)
	University	127(43.6)	95(34.8)
	Graduate school	31(10.7)	14(5.1)
Frequency of Social Commerce Use (Monthly)	1-2	289(65.4)	182(66.7)
	3-4	55(19.0)	27(9.9)
	5-6	18(6.2)	30(11.0)
	7-8	5(2.8)	31(11.4)
	9 and over	19(6.6)	3(1.1)
Money Spent on Social Commerce (Monthly)	Less than 30 dollars	119(41.3)	174(63.7)
	30 - 50 dollars	100(34.7)	55(20.1)
	50 - 70 dollars	33(11.5)	24(8.8)
	70 - 100 dollars	23(8.0)	14(5.1)
	100 - 200 dollars	11(3.8)	1(0.4)
	200 dollars and over	2(0.7)	5(1.8)
Purchasing Items	Food/Restaurants	53(18.3)	159(58.2)
	Cultural performances/ Events/Leisure	15(5.2)	35(12.8)
	Fashion (E.g., clothing, shoes)	120(41.5)	5(1.8)
	Beauty/Cosmetics/Accessories	29(10.0)	29(10.6)
	Tour/Hotel	15(5.2)	12(4.4)
	Books	10(3.5)	-
	Electronics	6(2.1)	-
	Household items	33(11.4)	-
	Health-related	-	33(12.1)
	Others	8(2.8)	-

## IV. Methods

### 4.1. Data Collection and Sample

To empirically test the proposed research model and hypotheses, we conducted a survey using a self-reported questionnaire method. In Korea, surveys were

administered to graduate and undergraduate students at a local university with experience in the use of group-buying social commerce (e.g., Coupang, We-Make-Price, and Ticket- Monster). During the class, we distributed a total of 400 questionnaires and received 318 responses. Excluding twenty- seven responses with unfinished and missing data, we used a total of 291 responses for the analysis.

To collect sample in China, this study conducted an online-based survey which is translated from

Korean to Chinese. We requested a retailer who is selling products/services on the group-buying social commerce site namely, Meituan.com to promote their customers to participate in our online-survey. The retailer is a Chinese graduate student in the university that we collected sample in Korea. This study selected customers with experience in Meituan because it is the dominant leader in group-buying social commerce, offering the best local deals to customers and also insuring high-rate profits to local retailers (Wen,

<Table 2> Results of the Confirmatory Factor Analysis

Constructs	Items	Standardized factor loadings (t-value)				AVE	Construct Reliability	Cronbach's $\alpha$
		Korea		China				
Scarcity Messages	sm1	0.962	-	0.774	-	0.815/0.572	0.898/0.727	0.882/0.681
	sm2	0.822	10.43	0.672	6.21			
Urge to Buy Impulsively	ubi1	0.821	-	0.784	-	0.743/0.610	0.920/0.862	0.930/0.863
	ubi2	0.848	17.50	0.747	12.37			
	ubi3	0.917	19.75	0.824	13.68			
	ubi4	0.924	19.98	0.776	12.89			
Utilitarian Value	uv1	0.873	-	0.800	-	0.729/0.688	0.914/0.898	0.887/0.884
	uv2	0.904	20.08	0.803	14.14			
	uv3	0.757	15.39	0.847	15.02			
	uv4	0.728	14.50	0.791	13.89			
Hedonic Value	hv1	0.843	-	0.768	-	0.722/0.567	0.886/0.796	0.898/0.767
	hv2	0.836	17.11	0.663	9.97			
	hv3	0.913	18.72	0.740	11.00			
Customer Satisfaction	cs1	0.827	-	0.746	-	0.799/0.667	0.923/0.857	0.882/0.794
	cs2	0.844	16.30	0.686	10.20			
	cs3	0.863	16.68	0.815	11.43			
Customer Loyalty	cl1	0.877	-	0.824	-	0.773/0.681	0.911/0.865	0.905/0.838
	cl2	0.901	20.35	0.799	13.11			
	cl3	0.840	18.40	0.764	12.63			

Note: \*\*\*  $p < 0.001$ .

Fit index (Korea): chi-square = 188.80, degrees of freedom ( $df$ ) = 137,  $p$ -value = 0.002, the goodness-of-fit index (GFI) = 0.936, the standardized root mean square residual (SRMR) = 0.033, the root mean square error of approximation (RMSEA) = 0.036, chi-square/ $df$  = 1.378, the adjusted GFI (AGFI) = 0.912, the normed fit index (NFI) = 0.954, the non-normed fit index (also called the Tucker-Lewis index) (NNFI/TLI) = 0.984 and comparative fit index (CFI) = 0.987.

Fit index (China): Chi-square = 178.49 ( $p$ -value = 0.010),  $df$  = 137, Chi-square/ $df$  = 1.303, GFI = 0.937 SRMR = 0.037, RMSEA = 0.033, AGFI = 0.913, NFI = 0.927, NNFI (or TLI) = 0.977 and CFI = 0.982.

2013). A total of 330 responses were received through the survey and excepting fifty-seven responses, we used 273 responses for the analysis. There were many responses dropped out during the online survey. The detailed information of the each sample collected from Korea and China is presented in <Table 1>.

#### 4.2. Measures

This study uses instruments developed in previous research, and then modified them slightly to reflect the context of group-buying social commerce. All items were measured on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The details of measures are presented in <Appendix>.

Scarcity messages are defined as the degree of a customer's perception on promotional messages emphasizing limited-quantity and limited-time of products in social commerce, based on the study of Aggarwal et al. (2011).

The urge to buy impulsively is defined as a customer's current state of impulsiveness while browsing social commerce sites, based on Parboteeah et al. (2009).

Utilitarian value is defined as the extent to which a customer obtains extrinsic benefits from social commerce shopping whereas hedonic value is defined as the extent to which a customer obtains intrinsic benefits from the shopping, based on the studies of Turel et al. (2007; 2010).

Customer satisfaction is conceptualized as a customer's overall evaluation on group-buying social commerce, based on Lam et al. (2004).

As a dependent variable in this study, customer loyalty is conceptualized a construct including word of mouth and repurchase intentions, based on Lam et al. (2004).

## V. Results

### 5.1. Measurement Model Assessment and Common Method Bias (CMB)

As shown in <Table 2>, Cronbach's  $\alpha$  for all constructs was 0.8 or higher, representing a satisfactory reliability for all constructs (Nunnally, 1978). Moreover, the composite reliability of all constructs quite exceeded the 0.70 threshold for acceptable reliability, and the AVE (average variance extracted) value exceeded the recommended threshold of 0.5 (Fornell and Larcker, 1981; Hair et al., 2010). We evaluated construct validity via the confirmatory factor analysis (CFA) by including all constructs and using Amos 20. As a result of the CFA, we obtained fit indices for the measurement model and assessed them according to the recommended threshold by Jöreskog and Sörbom (1993). In each sample collected in Korea and China, all indices met the recommended threshold, supporting that the model had a good fit to the data collected (See. <Table 2>). Finally, we confirmed the discriminant validity of all constructs by comparing the square root of the AVE ( $\sqrt{AVE}$ ) of all constructs with all the correlations (Fornell and Larcker, 1981). As indicated in <Table 3>, this study verified that our constructs have satisfactory discriminant validity in each sample collected from Korea and China.

The possibility of CMB was verified because this study measured independent and dependent variables from the same source. Using the Harman's single factor test (Podsakoff et al., 2003), this study checked whether one single factor emerges from the exploratory factor analysis and it accounts for a majority of the variance. In the Korean sample, the single factor accounted for 38.9 percent of the variance

&lt;Table 3&gt; Means, Standard Deviations, and Construct Correlation

	Constructs	Mean	S.D.	A	B	C	D	E	F
Korea	A Scarcity Messages	3.41	0.93	<b>0.903</b>					
	B Urge to Buy Impulsively	3.21	0.98	0.365 ***	<b>0.862</b>				
	C Utilitarian Value	3.76	0.76	0.298 ***	0.396 ***	<b>0.854</b>			
	D Hedonic Value	2.80	0.98	0.251 ***	0.486 ***	0.312 ***	<b>0.850</b>		
	E User Satisfaction	3.45	0.71	0.390 ***	0.393 ***	0.513 ***	0.174 **	<b>0.894</b>	
	F Customer Loyalty	3.45	0.89	0.351 ***	0.402 ***	0.442 ***	0.283 ***	0.644 ***	<b>0.879</b>
China	A Scarcity Messages	3.34	0.79	<b>0.756</b>					
	B Urge to Buy Impulsively	3.31	0.85	0.354 ***	<b>0.781</b>				
	C Utilitarian Value	3.30	0.80	0.018	0.220 **	<b>0.830</b>			
	D Hedonic Value	3.40	0.76	0.496 ***	0.532 ***	0.491 ***	<b>0.753</b>		
	E User Satisfaction	3.34	0.68	0.319 ***	0.384 ***	0.388 ***	0.628 ***	<b>0.817</b>	
	F Customer Loyalty	3.54	0.78	0.319 ***	0.341 ***	0.333 ***	0.501 ***	0.568 ***	<b>0.825</b>

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Figures along the diagonal denote the square root of the AVE.

and in the Chinese sample, the single factor accounted for 32.1 percent of the variance. The results show that there is no single factor that explains a large portion of the factor analysis, indicating that CMB is not a serious issue in this study.

Moreover, this study compared the fit index of our six-factor model and the single-factor model through CFA. In the Korean sample, the single-factor model did not provide a good fit (Chi-square = 2335.6,  $df = 152$ , GFI = 0.477, RMSEA = 0.223, and CFI = 0.443). Likewise, in the Chinese sample, the single-factor model did not show a good fit (Chi-square = 1283.2,  $df = 152$ , GFI = 0.608, RMSEA = 0.165, and CFI = 0.505). The results also demonstrate that CMB is not a serious issue in this study.

## 5.2. Testing of Research Model and Hypotheses

The structural equation modeling method was employed to test the proposed model and hypotheses, using AMOS 20. In each sample collected in Korea

and China, the model provided an appropriate fit of the data, as shown in <Figure 2> and <Figure 3>. <Table 4> summarizes the results of the hypothesis testing. In the sample from Korea, except H1b (the relationship of hedonic value and customer satisfaction), the other hypotheses were significant at the 0.001 level, thus providing support for those hypotheses. In the sample from China, four hypotheses (i.e., H2a, H3a, H3b, and H4) were rejected at the 0.05 level. The rest of hypotheses were significant at the 0.001 level, except H4a ( $p < 0.01$ ).

## 5.3. Multi-group Analysis

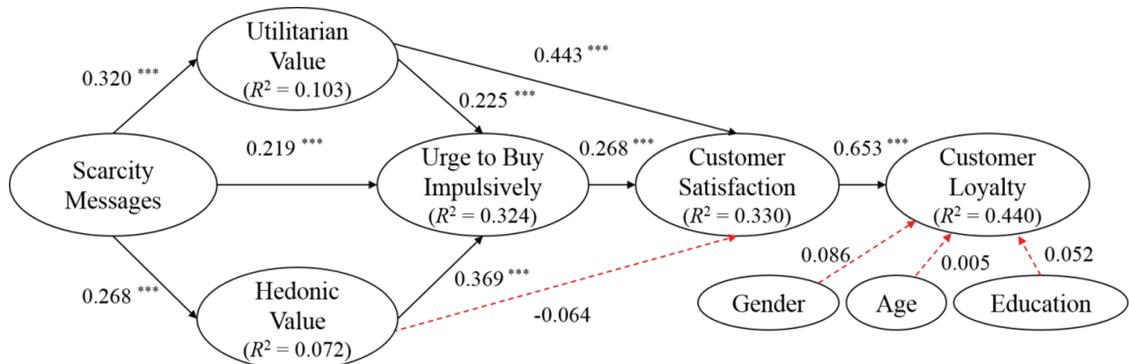
To verify differences in the impact of hypothesized relationships across countries, we conducted a multi-group analysis with two countries such as Korea and China. To examine whether the relationships between the independent and dependent variables would vary according to countries, we estimated an unconstrained (or free) model that imposed no restriction on these relationships. We then constructed

an equality-constrained model that equally constrained the relationships between the independent and dependent variables to verify the chi-square difference between the two models. Here we assumed a significant difference which means that there is a difference between Korea and China. <Table 5> shows the results for multi-group analysis with two countries. Our results found that there is a significant difference in three path coefficients across countries.

## VI. Discussion and Conclusions

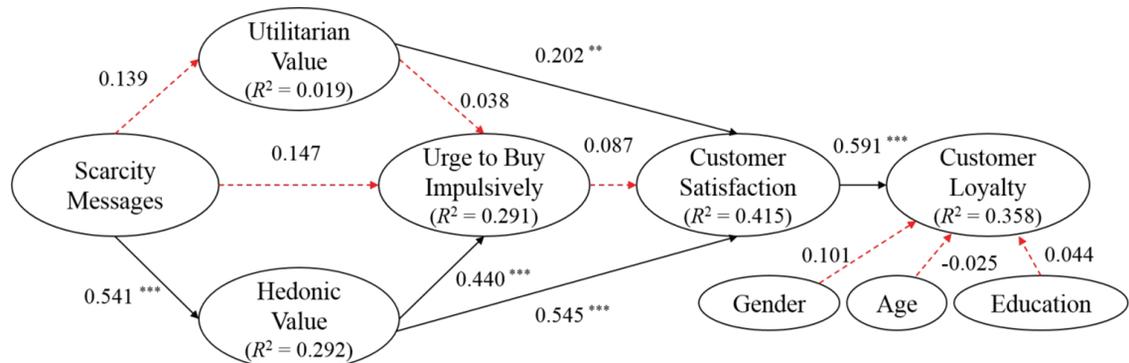
### 6.1. Discussion of the Findings

In the sample collected in Korea, this study obtained the following results. First, scarcity messages increase both utilitarian and hedonic values. Generally, group-buying social commerce sites attract customers by presenting scarcity messages stressing



Note: \*\*\*  $p < 0.001$ . Fit index (Korea): Chi-square = 306.464 ( $p$ -value = 0.000),  $df = 194$ , Chi-square/ $df = 1.580$ , GFI = 0.912, SRMR = 0.084, RMSEA = 0.045, AGFI = 0.886, NFI = 0.927, NNFI (or TLI) = 0.966 and CFI = 0.972.

<Figure 2> Results for Research Model (Korea)



Note: \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Fit index (China): Chi-square = 302.065 ( $p$ -value = 0.000),  $df = 194$ , Chi-square/ $df = 1.557$ , GFI = 0.910, SRMR = 0.083, RMSEA = 0.045, AGFI = 0.882, NFI = 0.881, NNFI (or TLI) = 0.944 and CFI = 0.953.

<Figure 3> Results for Research Model (China)

<Table 4> Summary of Hypotheses Testing

Hypotheses		Standardized path coefficients ( <i>t</i> -value)			
		Korea		China	
H1a	Utilitarian Value → Customer Satisfaction	0.443 (6.962) ***	supported	0.202 (3.185) **	supported
H1b	Hedonic Value → Customer Satisfaction	-0.064 (-1.000)	<i>ns</i>	0.545 (5.798) ***	supported
H1c	Customer Satisfaction → Customer Loyalty	0.653 (10.547) ***	supported	0.591 (7.585) ***	supported
H2a	Scarcity Messages → Utilitarian Value	0.320 (4.869) ***	supported	0.139 (1.782)	<i>ns</i>
H2b	Scarcity Messages → Hedonic Value	0.268 (4.079) ***	supported	0.541 (5.595) ***	supported
H3a	Scarcity Messages → Urge to Buy Impulsively	0.219 (3.494) ***	supported	0.147 (1.537)	<i>ns</i>
H3b	Utilitarian Value → Urge to Buy Impulsively	0.225 (3.843) ***	supported	0.038 (0.607)	<i>ns</i>
H3c	Hedonic Value → Urge to Buy Impulsively	0.369 (6.162) ***	supported	0.440 (4.655) ***	supported
H4	Urge to Buy Impulsively → Customer Satisfaction	0.268 (3.918) ***	supported	0.087 (1.100)	<i>ns</i>
	Gender → Customer Loyalty	0.086 (1.668)	<i>ns</i>	0.101 (1.723)	<i>ns</i>
	Age → Customer Loyalty	0.005 (0.105)	<i>ns</i>	-0.025 (-0.420)	<i>ns</i>
	Education → Customer Loyalty	0.052 (1.056)	<i>ns</i>	0.044 (0.755)	<i>ns</i>

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . *ns* = not-significant.

<Table 5> Square root of AVE and Correlation of Variables

Hypothesis		Unstandardized path coefficients			
		Korea	China	$\Delta x^2$	Results
H5	<b>Utilitarian Value → Customer Satisfaction</b>	<b>0.347</b> ***	0.161 **	5.952 **	supported
	<b>Hedonic Value → Customer Satisfaction</b>	-0.026	<b>0.477</b> ***	30.154 ***	supported
	Customer Satisfaction → Customer Loyalty	0.887 ***	0.735 ***	1.415	<i>ns</i>
	Scarcity Messages → Utilitarian Value	0.276 ***	0.165	0.846	<i>ns</i>
	<b>Scarcity Messages → Hedonic Value</b>	0.281 ***	<b>0.596</b> ***	6.807 **	supported
	Scarcity Messages → Urge to Buy Impulsively	0.196 ***	0.191	0.002	<i>ns</i>
	Utilitarian Value → Urge to Buy Impulsively	0.199 **	0.041	1.655	<i>ns</i>
	Hedonic Value → Urge to Buy Impulsively	0.396 ***	0.510 ***	0.774	<i>ns</i>
	Urge to Buy Impulsively → Customer Satisfaction	0.188 ***	0.067	2.373	<i>ns</i>

that customers are able to buy a product at a very cheap price for a limited time only. It is argued that discounted prices generate customers' intrinsic enjoyment and achievement of shopping (Song et al., 2015). In compliance with this argument, the current study shows that scarcity messages emphasizing discounted prices increase affective reaction, namely hedonic value. By contrast, the influence of scarcity messages on utilitarian value has not fully

explained in previous studies, despite the fact that online shoppers are sensitive to purchasing prices. That is, buying a desirable product at a very cheap price is one of the shopping goals that customers want to achieve from group-buying social commerce. Thus, it is noteworthy that scarcity messages greatly stimulate the cognitive reaction, namely utilitarian value that customers are eager to obtain from social commerce.

Second, this study indicates that the urge to buy impulsively is triggered by not only scarcity messages, but also utilitarian and hedonic values. This means that customers should make a rushed purchase decision because the purchasing is only possible for a certain time and for a certain quantity. In this sense, it can be said that scarcity messages as a promotion strategy used by group-buying social commerce sites are very effective in stimulating customers' urge to buy impulsively. Our results also show that both utilitarian and hedonic values provoke customers' urge to buy impulsively. Although previous research asserts that such impulsivity is only triggered by hedonic value (Parboteeah et al., 2009), the current study demonstrates that utilitarian value representing cognitive reactions can be also a trigger of the impulsivity.

Finally, customer satisfaction depends on utilitarian value and the urge to buy impulsively, and further it leads to greater customer loyalty. However, the effect of hedonic value on customer satisfaction is not significant in this study. The findings imply that customers seek to fulfil their utilitarian value in group-buy social commerce. That is, utilitarian value is more effective than hedonic value in determining customer satisfaction in Korea. This result is noteworthy, given that hedonic characteristics are considered as an important factor in designing online stores (Childers et al., 2001; Madhavaram and Laverie, 2004; Parboteeah et al., 2009). Thus, it is important to appeal utilitarian characteristics able to achieve Korean customers' extrinsic motive in group-buying social commerce.

In the sample collected in China, we obtained quite different results from the sample of Korea. In the Korean sample, except the relationship of hedonic value and customer satisfaction, all other relationships are significant. However, in the Chinese sample, particularly, utilitarian value-related relation-

ships are not significant. More specifically, first, scarcity messages only influence hedonic value, while they have no significant effects on utilitarian value and the urge to buy impulsively. Second, only hedonic value acts on the urge to buy impulsively. Third, customer satisfaction is determined by both utilitarian and hedonic values, but not by the urge to buy impulsively. Finally, it is verified that customer satisfaction greatly increases customer loyalty.

In the Chinese sample, overall, scarcity messages activate hedonic value only, which in turn increases the urge to buy impulsively and customer satisfaction, and thereby leading to customer loyalty. The findings imply that hedonic value is more influential than utilitarian value in determining Chinese customers' satisfaction of group-buying social commerce. The findings also imply that Chinese customers using group-buying social commerce put their emphasis on hedonic aspects of shopping. This result coincides with recent studies of impulse buying in the context of Chinese online or social commerce, showing that customers' impulse buying is determined by enjoyment or flow experience, not usefulness (Wu et al., 2016; Xiang et al., 2016). Therefore, Chinese group-buying social commerce sites should attempt to develop hedonic characteristics in designing their websites. That is, it is important to maximize customers' affective, intrinsic motives such as fun, enjoyment, and excitement. Managers could considerably increase customer satisfaction by fulfilling hedonic value. Furthermore, this study confirms that scarcity messages are an effective strategy of provoking hedonic value.

Based on the results of multi-group analysis with two samples collected in Korea and China, we found a significant difference in three path coefficients across countries. First, the effect of utilitarian value on customer satisfaction varies across countries. That

is, Korean customers perceive greater customer satisfaction through utilitarian value than Chinese customers. Second, in the case of hedonic value, Chinese customers seek to fulfill hedonic value in comparison with Korean customers, through group-buying social commerce. Finally, Chinese customers more strongly perceive the influence of scarcity messages on hedonic value than Korean customers.

The results indicate that the shopping value that customers aim to achieve through group-buying social commerce differs from countries, which provides a contribution by verifying the differences across countries. Thus, it is important that practitioners understand the differences and develop appropriate promotion strategies for different customers across two countries.

In relation to these differences, it is necessary to consider the difference of purchasing items in group-buying social commerce between the two countries. That is, Korean customers mainly purchase products in the fashion category (e.g., clothing, shoes) while Chinese customers mainly purchase ones in the food/restaurants category. That is, depending on categories, customers who purchase the fashion category focus on utilitarian value whereas customers who purchase the food/restaurants category focus on hedonic one. Moreover, the effect of scarcity messages on hedonic value is greater in the food/restaurants category than in the fashion category.

## 6.2. Implications for Research

The academic contributions of this study are as follows. First of all, this study proves the effectiveness of the customer value - customer satisfaction - customer loyalty framework in the context of group-buying social commerce. It is a noteworthy

that the framework provides a strong theoretical lens to analyze the process of building customer loyalty in both countries of Korea and China. Particularly, in both countries, customers' utilitarian and hedonic values greatly influence their satisfaction and thereby enhancing their loyalty in group-buying social commerce. The findings indicate that customers participate in the rational decision-making process by evaluating utilitarian and hedonic value (i.e., cognitive aspects) and customer satisfaction (i.e., affective aspect) for group-buying social commerce.

Second, this study extends the framework further by considering the issues of scarcity messages and impulsivity simultaneously which represent group-buying social commerce. By doing so, this study could show that scarcity messages and the urge to buy impulsively influence customers' rational decision making process which ranges from customer value to customer loyalty via customer satisfaction.

Although the concept of scarcity messages was proposed several decades ago (Brock, 1968), its theoretical link with extant theories has been weak. Most studies put their emphasis on proving the effect of scarcity messages on customers' purchase intentions and/or behaviors through experimental methods, as described in the 2.3 section. By contrast, this study has a contribution by integrating the concept of scarcity messages into the customer value - customer satisfaction - customer loyalty framework, arguing that scarcity messages arouse customers' utilitarian and hedonic values.

In addition, this study also integrates the concept of the urge to buy impulsively in our model, considering that it frequently occurs in group-buying social commerce due to the frequent exposure to environmental stimuli such as pop-up ads, price-comparison search engines, and so on. By doing so, this study can provide a new argument that scarcity messages

as a key environmental stimulus in group-buying social commerce arouse the urge to buy impulsively as well as influence cognitive reaction (i.e., utilitarian value) and affective reaction (i.e., hedonic value) as a response, which is supported by the Korean sample. On the contrary, scarcity messages only influence hedonic value and thereby increase the urge to buy impulsively in the Chinese sample.

Finally, our empirical study suggests that there are differences between Korean and Chinese customers regarding the impact of scarcity messages on customer value and the type of customer value determining customer satisfaction in group-buying social commerce. Although Korea and China are categorized as countries representing collectivism, this study raises a question by verifying customers' different reactions and responses across two countries. Therefore, this study calls for further research to understand how different culture influences customer value, beliefs, attitudes, and behaviors, given that e-commerce is pervasive across borders.

### 6.3. Implications for Practice

The findings can provide several implications to practitioners. Above all, the results suggest that managers should understand the process of building customer loyalty in group-buying social commerce. In both countries of Korea and China, it is apparent that customer satisfaction is a key determinant of customer loyalty. Besides, customers' value is a determinant of customer satisfaction, and thereby leading to increased customer loyalty. Therefore, it is essential to figure out customers' value that they want to obtain from group-buying social commerce, which could be a first step in retaining customers. By doing so, managers could consume their resources to develop appropriate policies to meet customer value

accurately.

Furthermore, the results imply that managers need different policies to satisfy customers across countries. In this study, Korean customers seek to obtain utilitarian value and thereby satisfy group-buying social commerce, whereas Chinese customers seek to obtain both utilitarian and hedonic value and thereby satisfy the commerce. Particularly, Chinese customers put more emphasis on hedonic value than utilitarian value. Thus, retailers that are selling their products and service on Korean group-buying social commerce sites (e.g., Coupang) attempt to maximize customers' utilitarian value by ensuring fast, convenient, and economic shopping. On the other hand, retailers on Chinese group-buying social commerce sites (e.g., Meituan) attempt to maximize customers' hedonic value by offering fun and pleasure elements during shopping.

Concerning the effectiveness of scarcity messages, this study implies that in group-buying social commerce, scarcity messages are an effective promotion strategy in stimulating customers' value. Scarcity messages such as "limited time only" or "limited one per customer" are commonly used in group-buying social commerce. By limiting the availability of products/service, retailers are able to appeal to customers' utilitarian and hedonic values.

More specifically, for Korean customers, scarcity messages extensively influence their utilitarian and hedonic values as well as the urge to buy impulsively. That is, scarcity messages contribute to the increase of utilitarian and hedonic values. Further, scarcity messages influence the urge to buy impulsively directly and indirectly through customer value. Therefore, the use of scarcity messages is very effective for Korean customers. Meanwhile, for Chinese customers, scarcity messages greatly act on hedonic value only. Generally, scarcity messages emphasize eco-

conomic benefits by offering products/service at a big discounted price for a limited time only. Interestingly, Chinese customers seek to obtain fun and pleasure during group-buying social commerce. Therefore, scarcity messages should be designed to appeal to customers' hedonic value in China.

With regard to the impact of the urge to buy impulsively, for Korean customers, the urge to buy impulsively increases their satisfaction, whereas for Chinese customers, it does not. While browsing social commerce sites, customers frequently experience an unexpected emotional response such as the urge to buy impulsively, through the exposure to various information and their shopping value. This study implies that such an unexpected emotional response plays a positive role during group-buying social commerce in Korea. Therefore, for Korean customers, retailers need to develop methods to arouse their urge to buy impulsively.

Finally, the comparison results suggest that managers should attempt to meet utilitarian value for Korean customers' satisfaction and to meet hedonic value for Chinese customers' satisfaction. Moreover, the impact of scarcity messages on hedonic value is greater for Chinese customers than it is for Korean customers. Therefore, it is effective that managers use scarcity messages to arouse hedonic value in China.

## VII. Limitations and Future Research

Concerning this study's limitations, first, the majority of the respondents in our sample collected in Korea and China are twenties (approximately 68% of Korean sample and 92% of Chinese sample). This leads to further research that considers the difference between younger people and older people in using

group-buying social commerce. Younger people are more likely to pursue hedonic value from social commerce, whereas older people are more likely to pursue utilitarian value from social commerce. Second, the results of testing hypotheses vary depending on countries. For example, the relationship of hedonic value on the urge to buy impulsively was significant in Korean customers, but not significant in the Chinese customers. However, this study does not explain what factors cause such difference, and calls for further research. Finally, in our sample, there is a difference of purchasing items that customers buy through group-buying social commerce platforms across countries. That is, Korean customers mostly buy items in the fashion category while Chinese customers mostly buy items in the food/restaurants category. It can be expected that such a difference produces different results across two countries, which remains to be further examined.

## VIII. Conclusions

In the context of group-buying social commerce, this study proves scarcity messages as a major environmental stimulus and the urge to buy impulsively as its response influence the customer value - customer satisfaction - customer loyalty framework. More specifically, it is verified that scarcity messages influence customers' value perception (i.e., utilitarian value and hedonic value), which in turn leads to customer satisfaction and further customer loyalty. Furthermore, scarcity messages and two types of customer values arouse the urge to buy impulsively, and thereby influencing customer satisfaction and customer loyalty. Finally, the results reveal that significant relationships between constructs vary across countries.

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These authors contributed equally to the work.

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## &lt;Appendix&gt; Measurement Instrument

All items were measured on a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Scarcity messages (Aggarwal et al., 2011).

sm1. Products/services offered by social commerce sites are available for a predefined period. sm2. Products/services offered by social commerce sites are available for a predefined quantity.

Urge to buy impulsively (Parboteeah et al., 2009; Song et al., 2015)

ubi1. When I browse the social commerce site, I frequently feel the urge to buy products/service other than my specific shopping goal.

ubi2. While browsing the social commerce site, I have a desire to buy products/services that do not pertain to my specific shopping goal.

ubi3. While browsing the social commerce site, I have the inclination to purchase products/service outside my specific shopping goal.

ubi4. While browsing the social commerce site, I feel the urge to buy products/service suddenly.

Utilitarian value (Turel et al., 2007; 2010)

uv1. Through social commerce, I buy products/services quickly.

uv2. Through social commerce, I buy prod-

ucts/services conveniently.

uv3. Through social commerce, I buy products/services with less effort.

uv4. Through social commerce, I do economic shopping.

Hedonic value (Turel et al., 2007; 2010)

hv1. Through social commerce, I enjoy searching new products/services.

hv2. Through social commerce, it seems that I could escape from everyday life.

hv3. Irrespective of purchasing products/services, I am happy with searching them in social commerce sites in itself.

Customer satisfaction (Lam et al., 2004)

cs1. Overall, I am satisfied with products/service that I have bought in social commerce.

cs2. I am more satisfied with the experience of the social commerce site than my expectation.

cs3. I am satisfied with the purchasing process of products/services in the social commerce site.

Customer loyalty (Lam et al., 2004)

cl1. I am willing to buy products/services through the social commerce site in future.

cl2. I will try to recommend the social commerce site to other people.

cl3. I will consider the social commerce site priorly when I buy products/services in future.

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