

# IMPULSIVE BUYING BEHAVIOR OF RESTAURANT PRODUCTS IN SOCIAL COMMERCE: A ROLE OF SERENDIPITY AND SCARCITY MESSAGE

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## Abstract

Nowadays, social commerce has rapidly expanded to diverse industries. One of the items that has expanded rapidly seems a restaurant type of coupons at a social commerce site, which mainly composes of social commerce items. However, research has been rare conducted concerning restaurant products in a social commerce environment. In this respect, the present study suggests a conceptual research model and empirically verified how a new way of business transaction (i.e, social commerce) beyond electronic commerce influences consumers in explaining an impulsive buying behavior in a restaurant context. Important findings are revealed that restaurant consumer's cognition affect emotion seriously, in addition, the role of enjoyment and urge to buy are critical in a social commerce environment. This study elaborates the theoretical understanding of impulsive buying behavior of restaurant consumers in social commerce context. Also, practically, this research shows how serendipitous information and scarcity message are crucial in social commerce.

*Keywords: Social commerce, Serendipitous information, Scarcity, Urge to buy impulsively, Impulsive buying behavior*

# 1. INTRODUCTION

Recently, social commerce has become a major channel in the restaurant industry. Social commerce provides not only fashion, cultural performance, cosmetic products and service, but it also provides a variety of restaurant product type of coupons. Out of all these products in social commerce context, it is the most frequently purchased by the consumers are the restaurant coupons (Chung & Song, 2014). Embrain (2014) has conducted a survey on social commerce usage and shows that 60.9% of the participants have experience of purchasing coupons of restaurants products through social commerce sites. Compare to other products, consumers have experienced variously in using restaurants products.

In the past, almost all of the studies on social commerce have focused on rational and expected purchasing of buyers (Hajli, 2013; Shin, 2013), rather than irrational and unexpected purchasing behavior in social commerce. Thus, our understanding of the social commerce still remains scant. An important thing in social commerce would be unreasonable behavior caused by impulsive emotion and unexpected variables. The impulsive buying behavior is usually seen negatively since it is irrational action compared to planned purchase. Nonetheless, impulsive behavior has its credits, such as bringing a feeling of satisfaction, while rationally planned purchase can be felt as a duty (Beatty & Elizabeth Ferrell 1998). The purpose of shopping has changed over the years. Unlike planning and rational shopping habits of the past, nowadays people values experimental and hedonic style of impulsive buying behavior through shopping (Novak et al. 2003). This buying pattern tends to be easily observed at the social commerce. The purpose of shopping for consumers with the impulsive buying make them feel satisfied through action of buying itself rather than buying that they actually need (Beatty & Elizabeth Ferrell 1998).

Even though previous studies has conducted through impulsive buying behavior, there are little research what factors cause impulsive buying behavior at social commerce. When customers search products in a website serendipitous information, which is come from discovered information (Toms, 2000), would give an emotional affection. While purchasing a restaurant coupon in a social commerce site, it provides a list of suggestions depending on a buyer's location. This social commerce system provides customers a chance of discovering useful information fitting customer's preference (Zhang et al. 2012). For product information discovered from navigation process is different from planned search process, it can easily cause impulsive buying behavior (Zhang et al. 2012). Another factor would be scarcity message, alarming individuals that there are limited possibility of buying a particular product (Lynn, 1989), for behaving impulsively. For example, Groupon limits time and quantity (Sik & Hwan, 2014), which increases chances of impulsive buying behavior. Due to limitation in space and time for restaurant products, they are normally less quantity than other products. Therefore, social commerce users tend to buy restaurant products more sensitive at scarcity message. Impulsive buying behavior has driven by a different context compared with planned buying behavior in a sense, which appears emotion from an external experience rather than rational thinking. In sum, rational and planned behavioral theories would not well applicable in explaining impulsive buying behavior online (Verplanken & Herabadi, 2001). We reviewed psychological and emotional factors related to impulsive buying behavior, this study will focus on the enjoyment and their urge to buy impulsively. Therefore, the purpose of this research are following.

First, our study investigates how cognitional factors in a social commerce influence an emotional factor by using empirical study.

Second, the relationship between an emotional factor of restaurant product buyers and impulsive buying behavior in social commerce is identified through empirical approach.

Finally, this study will give a theoretical understanding of restaurant product consumer's behavior as well as also provide a practical insight to marketing practitioners who are managing restaurants or social commerce sites.

## 2. THEORETICAL BACKGROUND

### 2.1 Serendipitous information

The ways of acquiring information can be divided into search and discovery. Acquiring information by inputting words or a sentence to the search engine related to consumer's shopping interest is called 'search' in online shopping environment. On the other hand, discovery is when a consumer comes across an interesting shopping information when navigating through Internet. In another word, it is the serendipity way of acquiring information. Recently, there has been great deal amount of technical improvements done on recommendation system. Due to these improvements, discovering information is easily accepted as a general information collecting format in our daily life (Zhang et al. 2012). When a user discovers information that meets one's need by coincidence, this information is called serendipitous information (Toms, 2000). When serendipitous information is discovered, a user will experience the "Aha! Moment" (McCay-Peet & Toms, 2011), that enables one to have better understanding of a case and aid one to come up with a solution (Foster & Ford, 2003). According to a recent study, serendipity provides happiness and satisfaction to the buyers by helping them find a new item (Bellotti et al. 2008; Zhang et al. 2012). In addition, (Sun et al. 2013) clarified that serendipity is an effective way to enhance user experience. As this point, serendipitous information is a crucial factor that arouses positive emotion to the social commerce users. Naturally, serendipitous information has a utilitarian facet (Clegg & Mendonça, 2010; Sun et al. 2013). Nonetheless, there are also many studies that emphasize hedonic value, which is derived from joy and fun of discovering information (André et al. 2009; Clegg & Mendonça, 2010; McCay-Peet & Toms, 2011). As this study researches impulsive buying behavior, we will highlight more on hedonic aspects.

### 2.2 Scarcity message and discounted price

Scarcity message is a useful tool to elevate the buying process by alerting consumers that there are limited chances of purchasing a specific product (Lynn, 1989). Some theories can explain effects of scarcity message as a commodity theory (Brock, 1968), a theory of need for uniqueness (Fromkin, 1968), a psychological reactance theory (Brehm & Brehm, 1981), and a naive economic theory (Lynn, 1992). Those theories account for that scarcity messages swell psychological pressure of the buyer which could motivate and promote purchasing behavior. Also, according to prior research (Chung & Song, 2014; Verplanken & Herabadi, 2001), discounted price is a crucial factor in social commerce. Thus, we add scarcity message and discounted price in our model (we display example of two variables in Figure 1).



Figure 1. Example of discounted price and scarcity message in social commerce

Based on those theories, many researchers have studied on scarcity and they concluded that scarcity message could largely be distinguished into two different concept, one is a limited quantity and another is a limited time (Rice & Keller, 2009). A limited quantity is to set the number of the products that can be bought, in contrast, a limited time is to limit the time products can be bought. Likewise, scarcity message is a method of expressing messages to customers by limiting the products quantity and time, which increase the value and attractiveness of a certain product or service (Cialdini, 2008). This study targets on an understanding of a relationship between the scarcity message and customers' impulsive buying behavior.

Expectedly, a restaurant business is basically a limited space in social commerce site compared with other businesses. In the social commerce context, therefore, there are limited for a product provider on types and quantity of restaurant product. When products are provided in small amount, the limited quantity is inevitably sensitive. If restaurant products are provided in small quantity to start with, consumers seem to easily recognize the scarcity which causes impulsive buying behavior. Critically important, restaurant products are usually perishable. Therefore, it has to be sold by a designated time. Due to its perishability, consumers feel pressure to buy for the limited products. This study will give us an understanding how the scarcity by the limited quantity and time can affect customers' impulsive buying behavior. Therefore, recognized scarcity message was measured as impulsive buying behavior's external cognition elements.

### **2.3 Impulsive buying behavior**

Impulsive buying behavior is derived from an urge. The impulse buyers does not think seriously about why they needs this product. Rather, people just do buy impulsively (Beatty & Elizabeth Ferrell 1998). Unlike the complex normal purchasing activity, impulsive buying behavior excludes information search phase and assessment of alternatives which means, emotional stimulus force a user to actual purchasing action (Rook & Hoch, 1985).

Looking at the early studies on impulsive buying behavior, Stern (1962) explained that researchers view impulsive buying behavior equal to unplanned purchase (Chung et al. 2014). On the other hand, later study's researchers view impulsive buying behavior as a separate concept from unplanned purchase. Referring to Weinberg and Gottwald (1982), impulsive buying behavior is similar with an unplanned action. Nonetheless, unplanned purchase is not always equal to an impulsive buying behavior. This study agitates that it seems consumers' emotional side, cognitive side, and instinctive side that explains impulsive buying behavior. In addition, Beatty & Elizabeth Ferrell (1998) defined that impulsive buying behavior is explained as a behavior shown prior to actual purchase is done and an action of buying a product without planned intention, but earn one's impulsive emotion. When one experiences the urge to buy impulsively and does not think thoroughly about the purchase, it is followed by impulsive buying behavior. Simply put, after consumers feel the urge to buy, it leads to impulsive buying behavior (Beatty & Elizabeth Ferrell 1998). Of course, not all urges to buy is linked to impulsive buying behavior. Nonetheless, it is generally taken that urge to buy impulsively works as an emotional medium for impulsive buying behavior taking place (Verhagen & van Dolen, 2011).

Urge to buy impulsively is one of types of unplanned emotion. This means, when individuals buy a products, people do not think exhaustively about the need of the products. Rather, it will result in immediate purchase to satisfy the buying duty which naturally leads to impulsive purchase behavior (Verhagen & van Dolen, 2011). Impulsive buying behavior is connected with a sudden buying, accompanied by a strong urge and felling of joy and excitement (Rook, 1987). Urge to buy impulsively blocks the people to plan on searching alternatives and make customers do impulsive buying behavior (Lee et al. 2009). According to previous studies on shopping, it is said that there are factors that accelerate the purchasing behavior on Internet. For example, online shopping is easy to access and have a variety of products and promotion (Koski, 2004). Since online sites are easy to use, provide various products, and offers lower price, there is higher possibility for occurring emotion which can be easy to evoke the impulse buying. Also, Weinberg and Gottwald (1982) said buyers' emotion plays an important role in impulsive buying.

Only a few empirical studies have approached to the urge to buy impulsively. Parboteeah et al. (2009) studied on how a website is formed influences consumers' urge to buy impulsively. In addition, Wells et al. (2011) researched on how impulsiveness and website quality affect urge to buy impulsively, and Verhagen and van Dolen (2011) investigated how convenience and representational delight go through urge to buy impulsively eventually leads to impulsive buying.

### 3. RESEARCH MODEL AND HYPOTHESES

The research model is derived from former studies of impulsive buying behavior and integrated information response model (Smith & Swinyard, 1982). In the integrated information response model, there are two routes of reacting to information (as shown in figure 2). First route starts with cognition of the information and goes through trial which affects emotion that will eventually leads to commitment. Second route, shown in dotted line, exclude trial step. Which means, cognition of the information affects emotion directly leading to commitment.

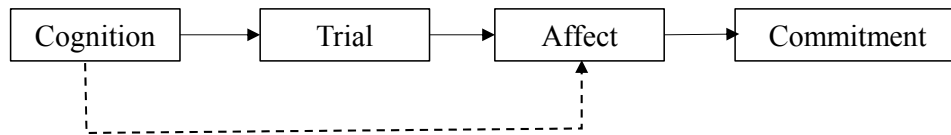


Figure 2. Summary of integrated information response model (Smith and Swinyard, 1982)

Unlike reasonable purchase, impulsive buying behavior does not go through various trial stages. The impulsive buying behavior is based on direct emotional stimulus that excludes search process. Therefore, impulsive buying behavior is in similar sense with second route (Rook & Hoch, 1985). This study recognized that cognition can directly reach affect (emotion) stage, and formulate emotion of enjoyment and urge to buy impulsively, and finally lead to impulsively buying behavior. In terms of restaurant items, impulsive buying behavior is prevalent, impulsive buying behavior is found repetitively in restaurant products (Miao & Mattila, 2013), the study would be meaningful in the context of restaurant social commerce. To identify the relationship between cognitional and emotional factors with impulsive buying behavior, this study proposes a research model in Figure 3.

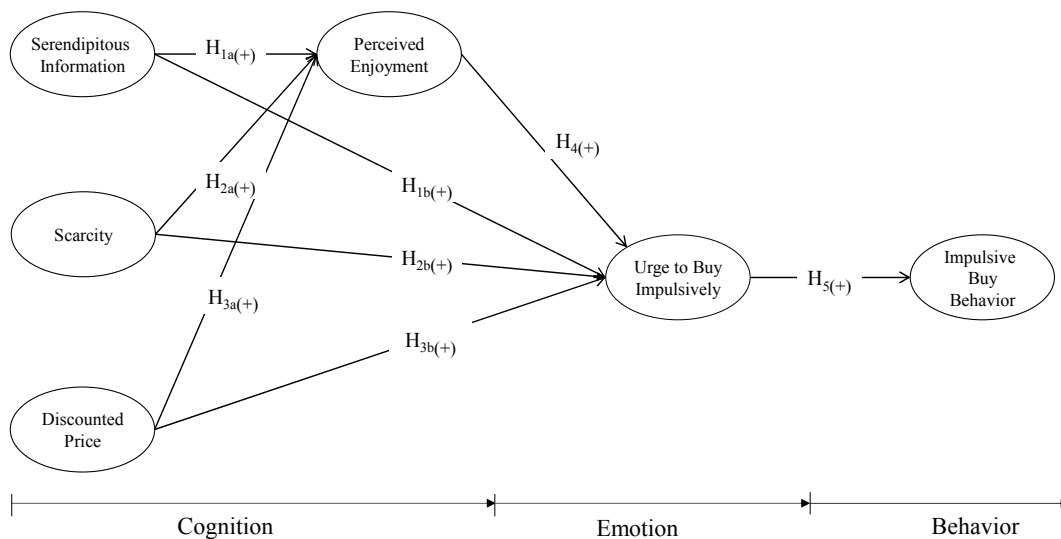


Figure 3. Research Model

### 3.1. The relationship between cognition and emotion

When a user discovers serendipitous information, it will be very attractive and even surprising. This emotion will make affect users' experience, believing that they are having fun. The enjoyment comes from pleasant experience from using the system. In the context of impulsive buying behavior which has hedonic purpose, the enjoyment take greater importance than the perceived usefulness. Users experience enjoyment through interesting features at the web or the system. The serendipitous information is one of the interesting features that provide enjoyment.

Since serendipitous information is unexpected discoveries by accident, impulsive action is easier to be seen compared to planned search process. At social commerce, restaurant product consumers are constantly suggested with products based on their preference and location. This system enables users to discover the information without searching process where one needs to input his/her specific request. Serendipity is unexpected finding and value (Foster & Ford, 2003), also, it is unusualness or surprise of recommendation (Zhang et al. 2012). As serendipity is an unexpected stimulation, it can arouse unplanned and impromptu actions rather than planned actions. Serendipitous information will enhance users' experience through "Aha! Moment" (McCay-Peet & Toms, 2011), which will increase urge to buy impulsively emotion. Hence, this work proposes the following hypotheses:

**H<sub>1a</sub>:** Serendipitous information has a positive effect on enjoyment

**H<sub>1b</sub>:** Serendipitous information has a positive effect on urge to buy impulsively.

Scarcity can be explained as consumers' recognition of the scarcity value of a product or service due to its limitation (Lynn, 1989). Prior studies saw purchase limitations as informational cues to the consumer (Aggarwal et al. 2011; Lynn, 1992). Many social commerce sites such as Groupon is already utilizing scarcity message as an effective tool to increase an impulsive buying behavior. As expressed in figure 3, two types of scarcity messages are mostly employed by the practice: limited time (e.g., "Sale ends today") and limited quantity (e.g., "Only 40 units available at this price"). This cause the rise in impulsive emotion toward certain product or service accelerating the purchasing decision (Aggarwal et al. 2011).

Consumers of social commerce do not have sufficient time to search for alternatives because of a pressure they receive from time and quantity limitation. The pressure of the scarcity message raises consumers' urge to buy. When a product is impossible to buy, it is natural that the product's value increases. As increase in the product value is recognized, consumers are more motivated in acquiring the product. In addition, when a product becomes rare which limits purchasing action, people will feel stronger emotion to possess this product (Brehm & Brehm, 1981). When consumers recognize that this limited product is available to him/her, it arouses a positive emotion. To recap, since being in a competitive environment with limited resource is a strong stimulus, consumers are prefer to scarce products (Cialdini, 2008). Hence, the following hypotheses are proposed:

**H<sub>2a</sub>:** Scarcity message has a positive effect on enjoyment

**H<sub>2b</sub>:** Scarcity message has a positive effect on urge to buy impulsively.

In online shopping mall, sellers effectively lure consumers by using promotion strategy such as discounted price and incentives (Lepkowska-White, 2004). Price promotions have emerged as an important marketing factor in sales promotion strategy and have drawn an increasing amount of attention from both practitioners and researchers (Nusair et al. 2010).

The price discount is a factor that makes consumers happy, and it is also an important factor that triggers impulsive buying behavior (Rook & Fisher, 1995). In general, people experience great price deals more on on-line than off-line. Therefore, majority of consumers experience impulsive buying behavior in on-line

environment (Moe & Fader, 2004). The impulsive buying behavior does not occur with just low cost. What is most important is that consumers actually recognize that the price has been reduced. Recently, many online shopping malls such as social commerce send out messages (e.g. 50% or you save 25\$) to make users be aware about price discount. These tools increase the attractiveness, and positive image of social commerce. Moreover, it works as a main accelerator that causes urge to buy. Hence, the following hypotheses are proposed:

**H<sub>3a</sub>:** Discounted price has a positive effect on enjoyment

**H<sub>3b</sub>:** Discounted price has a positive effect on urge to buy impulsively.

In addition, one of the main factors that causes urge to buy emotion is consumer's enjoyment. It is more likely for the consumers to freely approach to a product when they are in a positive mood (Gardner & Rook, 1988). Users in a good mood tend to be more impulsive and spend more money (Verplanken & Herabadi, 2001). In online environment, personal emotion such as enjoyment has great effect on urge to buy impulsively. In addition, it is easier to feel urge to buy impulsively when one experiences positive emotion created at on-line shopping environment (Park et al. 2012). Hence, this work proposes the following hypotheses:

**H<sub>4</sub>:** Enjoyment has a positive effect on urge to buy impulsively.

### **3.2. The relationship between the urge to buy impulsively and impulsive buying behavior**

Impulsive buying behavior arise from urge to buy impulsively. Every urge to buy impulsively is not become an impulsive buying behavior, however, the more consumers experience urge, the more consumers tend to purchase the item what they want (Beatty & Elizabeth Ferrell 1998). The individual acts to fulfill the urge by purchasing the object of interest (Parboteeah et al. 2009). According to empirical study, urge to buy impulsively have a dominant influence on impulsive buying behavior (Verhagen & van Dolen, 2011). Hence, the following hypotheses are proposed:

**H<sub>5</sub>:** Urge to buy impulsively has a positive effect on impulsive buying behavior.

## **4. RESEARCH METHOD**

### **4.1 Data collection and method**

To test the structural model, an online survey was used to collect empirical data. The sample consisted of customers of a social commerce selling restaurant products in the South Korea. We collected data from buyers who have recently purchased restaurant products at a social commerce site. Respondents of the questionnaire were asked to recall last restaurants products purchase in social commerce.

Also, the quota sampling method was employed in this research. A quota sampling method employing authorized census data from the Korean Statistical Information Service (2013) was used to compute the appropriate numbers of Korean respondents in each age category. Age groups were as follows: 22.6% ages 20-29, 26.8% ages 30-39, 28.2% ages 40~49, and 22.4% ages 50 and over. There are two reasons for excluding those under 20. First, online shopping rates for those under 20 are very low. Second, it is rare to see individuals under 20 purchasing restaurants products online.

We chose an Embrain which is professional Internet market research firm to perform online survey. This firm is ranked at the 1<sup>st</sup> among Korean Internet market research firms. This firm possesses the largest panel of 1,063,379 users among Korean Internet research firms, whereas other Internet research firms retain panels ranging from 300,000 to 400,000. This firm represents the largest market share of 36.7% of Korean

Internet market research firms. From August 20 to August 22, 2014, the survey was administered to Korean internet users recruited by the aforementioned company, after consulting with design practitioners from that company. The age groups were automatically populated to match the proportion of users in their 20s, 30s, 40s and more than 50s.

Several ways which suitable individuals were identified to take our survey were employed. First of all, survey has a screening question “Please click the number of activities with multiple choices which you have experienced during the past one year.” One of the choices included purchasing restaurant products and services in social commerce. If respondents did not click for purchasing restaurant products and services in social commerce, then the respondent would automatically be excluded from completing the survey. This system prevents unqualified persons who do not have the experience. Furthermore, we provided the definition of restaurant products and services at the beginning of the main survey by the Internet research firm. In our survey, the restaurant products and services also included all kinds of restaurants which provide food and beverage. Second, if answers seemed invalid, for example, multiple questions answered by clicking the same number or obvious patterns in the response clicks, then the respondent was automatically barred from the Internet survey. Third, when a respondent failed to answer a question, the survey engine refused to proceed to the next question until the omitted question had been completed.

A total of 332 responses were collected and data was coded for analysis using SPSS version 21.0 and AMOS version 18.0. Table 1 presents the demographic characteristics of the samples. There were little more females (52.1%) than males (47.9%). The major proportion of the respondents (28.3%) was aged between 30 and 39. And second one was aged between 20 and 29 (25.0%), followed by ages between 40 and 49 (27.7%) and ages 50 and overs (19.0). There were more married (61.1%) than single respondents (38.9%), and significant university-level or higher education (87.3%). The average monthly income per household was 3.64 million Korean Won (approximately US\$3400).

	Characteristics	Frequency	%
Gender	Male	159	47.9
	Female	173	52.1
Age	20-29	83	25.0
	30-39	94	28.3
	40-49	92	27.7
	50 and over	63	19.0
Education	Middle and high school	42	12.7
	University	254	76.5
	Graduate school	36	10.8
Marital Status	Single	203	61.1
	Married	129	38.9
Income	Under 1.00 million Won <sup>a</sup>	29	8.7
	1.00-1.99 million Won	61	18.4
	2.00-2.99 million Won	77	23.2
	3.00-3.99 million Won	50	15.1
	4.00-4.99 million Won	63	19.0
	More than 5million Won	52	15.7
Total		332	100

<sup>a</sup> 1 US\$ = 1085.50 Korean Won as of January 28, 2015

Table 1. Demographic characteristics of respondents

## 4.2 Measures

Measurement items from prior studies were used measure constructs in this study. All items were measured on a seven-point Likert scale. Measurement items for the discounted price were adapted from (Gupta & Kim, 2010). Item measures for scarcity message was developed from (Brock, 1968), while serendipitous



information was adopted (McCay-Peet & Toms, 2011). Enjoyment measures were adapted from (Aggarwal et al. 2011). Also, item measures for urge to buy impulsively and impulsive buying behavior were developed from (Verhagen & van Dolen, 2011).

## 5. Data analysis and results

The data were analyzed using AMOS18.0. AMOS is a maximum likelihood-based structural equation modeling (SEM) software. As presented in Figure 1, the measurement model was assessed. Discounted price, scarcity message, serendipitous information, enjoyment, urge to buy impulsively and impulsive buy behavior were all measured. The SEM used a two-step hybrid method by specifying a measurement model in the confirmatory factor analysis (CFA) and testing a latent structural model developed from the measurement model (Kline, 2005).

### 5.1 Confirmatory Factor Analysis

We estimated the constructs for convergent validity and discriminant validity by way of CFA. AMOS 18.0 was used for assessing CFA. The  $\chi^2$  fit statistic was 270.641 with 155 degrees of freedom ( $\chi^2/d.f = 1.746$ ) ( $p < 0.000$ ). The goodness-of-fit index (GFI) was 0.922, the adjusted goodness-of-fit index (AGFI) was 0.894, the normed fit index (NFI) was 0.947, the comparative fit index (CFI) was 0.976, and the root mean square error of approximation (RMSEA) was 0.047. All statistics supported the overall measurement quality given the number of indicators. Convergent validity was checked using three other criteria. First, the standardized path loading of each item must be statistically significant and greater than 0.6 (Bagozzi & Yi, 1988). Second, the composite reliability (CR) and the Cronbach's  $\alpha$  for each construct must be larger than 0.7. Third, the average variance extracted (AVE) for each construct must exceed 0.5. As shown in Table 2, the standardized path loadings were all significant and exceeded 0.6 Also, the CR and the Cronbach's  $\alpha$  for all constructs were greater than 0.7. The AVE for each construct exceeded 0.5. Therefore, the convergent validity for the constructs was supported.

Constructs and Variables	Loadings	CR <sup>b</sup>	AVE <sup>c</sup>	$\alpha$
<b>Serendipitous information</b>		0.822	0.608	0.812
I obtained unexpected insights when do the shopping in social commerce.	0.667			
I unexpectedly discovered by chance what I want to buy before when do the shopping in social commerce. <sup>d</sup>	-			
I found things that surprised me when do the shopping in social commerce.	0.852			
I was able to see the ordinary in new ways when do the shopping in social commerce.	0.809			
<b>Scarcity message</b>		0.877	0.705	0.871
When I do shopping in social commerce, I thought deadline.	0.726			
When I do shopping in social commerce, I worried about limited time	0.911			
When I do shopping in social commerce, I concerned about limited quantity. <sup>d</sup>	-			
When I do shopping in social commerce, I was anxious about sold out sign.	0.871			
<b>Discounted price</b>		0.925	0.756	0.923
It may be possible to get a worse discount from another online store.	0.836			
It may be more expensive to buy books at another online store.	0.877			
I will probably save more money buying restaurant products at this social commerce than another online store.	0.958			
I may need to pay less money buying restaurant products at this social commerce that at another online store.	0.798			
<b>Enjoyment</b>		0.904	0.759	0.903
I have fun interacting with this social commerce site.	0.871			
Using this social commerce site provides me with a lot of enjoyment.	0.916			
I enjoy using this social commerce site. <sup>d</sup>	-			

Using this social commerce site please me.	0.824			
<b>Urge to buy impulsively</b>		0.874	0.699	0.869
I experienced a number of sudden urges to buy things when do the shopping in social commerce	0.772			
I saw a number of things I wanted to buy even though they were no on my shopping list when do the shopping in social commerce. <sup>d</sup>	-			
I experienced strong urges to make unplanned purchases when do the shopping in social commerce.	0.860			
When I do the shopping in social commerce, I felt a sudden urge to buy something.	0.873			
<b>Impulsive buying behavior</b>		0.913	0.779	0.914
My purchase was spontaneous. <sup>d</sup>	-			
My purchase was unplanned.	0.878			
I did not intend to do this purchase before this shopping trip.	0.840			
I could not resist to do this purchase at this social commerce.	0.927			

<sup>a</sup>  $\chi^2 = 270.641$ ,  $d.f = 155$  ( $\chi^2/d.f = 1.746$ ),  $p = 0.000$ ,  $GFI = 0.922$ ,  $AGFI = 0.894$ ,  $NFI = 0.947$ ,  $CFI = 0.976$ ,  $RMSEA = 0.047$ ,  $RMR = 0.0349$

<sup>b</sup> Composite Reliability

<sup>c</sup> Average Variance Extracted

<sup>d</sup> The item was deleted after confirmatory factor analysis.

Table 2. Results of Convergent Validity Testing

The discriminant validity of the measurement model is tested by comparing the square root of the AVE for each construct with the correlations between that construct and other constructs. If the square root of the AVE was greater than the correlations between that construct and other constructs, then this indicates discriminant validity (Fornell & Larcker, 1981). As shown in Table 3, the square root of the AVE for each construct exceeded the correlations between that construct and the other constructs. Therefore, discriminant validity was established.

Construct	Correlation of constructs						Mean	S.D.
	1	2	3	4	5	6		
<b>1. Serendipitous information</b>	<b>0.780**</b>						4.884	0.946
<b>2. Scarcity message</b>	0.479**	<b>0.840**</b>					4.608	1.258
<b>3. Discounted price</b>	0.217**	0.161**	<b>0.869**</b>				4.668	1.013
<b>4. Enjoyment</b>	0.536**	0.381**	0.465**	<b>0.871**</b>			4.964	1.026
<b>5. Urge to buy impulsively</b>	0.520**	0.506**	0.143**	0.412**	<b>0.836**</b>		4.505	1.115
<b>6. Impulsive buying behavior</b>	0.292**	0.315**	0.049	0.222**	0.345**	<b>0.883**</b>	3.783	1.265

\*\*  $p < 0.01$

Table 3. Correlation and Descriptive Statistics

## 5.2 Hypothesis Testing

To show overall fit, Table 4 and Figure 4 present the maximum-likelihood estimates for the various parameters. The  $\chi^2$  statistic fit was 258.296 with 141 degrees of freedom ( $\chi^2/d.f = 1.832$ ) ( $p < 0.000$ ). The GFI was 0.922, the AGFI was 0.895, the NFI was 0.945, the CFI was 0.974, the RMR was 0.0414 and the RMSEA was 0.050. These multiple indicators suggested that the model has a good fit, justifying further interpretation.

The squared multiple correlations (SMCs;  $R^2$ ) for the structural equations for enjoyment, urge to buy impulsively and impulsive buying behavior are 0.504, 0.437 and 0.504. Over half of the variance ( $R^2 = 0.504$ ) in enjoyment is explained by the effects of discounted price, scarcity message, and serendipitous information. In the case of urge to buy impulsively ( $R^2 = 0.437$ ), even more of the variance is explained by

the effects of discounted price, scarcity message, serendipitous information and enjoyment. Further, for impulsive buy behavior ( $R^2 = 0.504$ ), the variance is explained by the effects of urge to buy impulsively.

Hypothesis	Path	Estimates (t-value)	Results
H <sub>1a</sub>	Serendipitous information → Enjoyment	0.435 (6.667)	Supported
H <sub>1b</sub>	Serendipitous information → Urge to buy impulsively	0.339 (4.414)	Supported
H <sub>2a</sub>	Scarcity message → Enjoyment	0.123 (2.132)	Supported
H <sub>2b</sub>	Scarcity message → Urge to buy impulsively	0.337 (5.374)	Supported
H <sub>3a</sub>	Discounted price → Enjoyment	0.387 (7.543)	Supported
H <sub>3b</sub>	Discounted price → Urge to buy impulsively	-0.052 (0.899)	Not supported
H <sub>4</sub>	Enjoyment → Urge to buy impulsively	0.131 (1.733)	Supported
H <sub>5</sub>	Urge to buy impulsively → Impulsive buying behavior	0.710 (13.460)	Supported

$\chi^2 = 258.296$ ,  $df = 141$  ( $\chi^2/df = 1.832$ ),  $p = 0.000$ ,  $GFI = 0.922$ ,  $AGFI = 0.895$ ,  $NFI = 0.945$ ,  $CFI = 0.974$ ,  $RMR = 0.0414$ ,  $RMSEA = 0.050$

Table 4. Standardized Structural Estimates and Tests of the Main Hypotheses

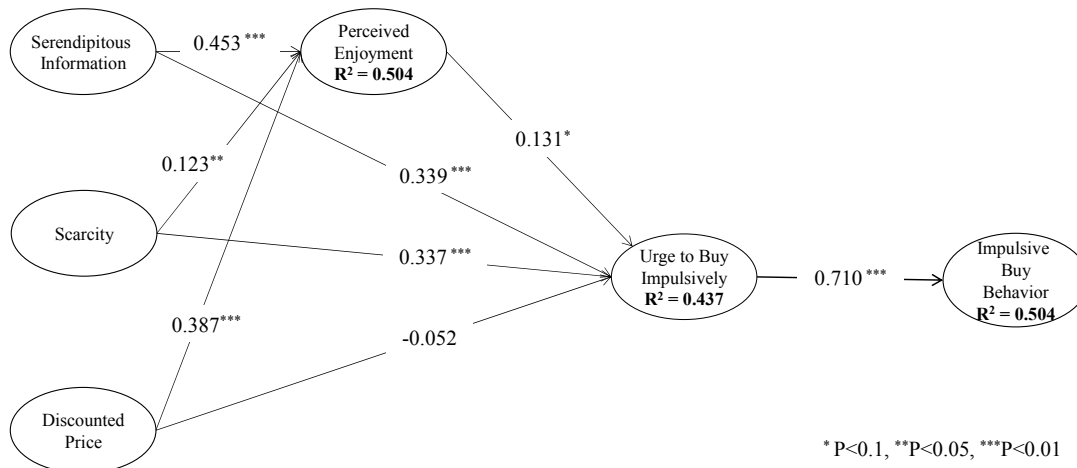


Figure 4. The estimated structural model.

Hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub> addressed the structural relationships among discounted price, scarcity message, serendipitous information, enjoyment and urge to buy impulsively. Serendipitous information had a positive effect on enjoyment (H<sub>1a</sub>,  $\beta = 0.435$ ,  $t\text{-value} = 6.667$ ,  $p < 0.001$ ) and urge to buy impulsively (H<sub>1b</sub>,  $\beta = 0.339$ ,  $t\text{-value} = 4.414$ ,  $p < 0.001$ ), thus validating H<sub>1a</sub> and H<sub>1b</sub>. And scarcity message had a positive effect on enjoyment (H<sub>2a</sub>,  $\beta = 0.123$ ,  $t\text{-value} = 2.132$ ,  $p < 0.05$ ) and urge to buy impulsively (H<sub>2b</sub>,  $\beta = 0.337$ ,  $t\text{-value} = 5.374$ ,  $p < 0.001$ ); thus, this result supports H<sub>2a</sub> and H<sub>2b</sub>. Also, H<sub>3a</sub> is supported by the significant, positive impact of discounted price on enjoyment ( $\beta = 0.387$ ,  $t\text{-value} = 7.543$ ,  $p < 0.001$ ). But, discounted price (H<sub>3b</sub>) did not have a positive effect on urge to buy impulsively ( $\beta = -0.052$ ,  $t\text{-value} = -0.899$ , n.s.), thus invalidating H<sub>3b</sub>. Hypotheses H<sub>4</sub> addressed the relationships between enjoyment and urge to buy impulsively. Enjoyment has a positive effect on urge to buy impulsively ( $\beta = 0.131$ ,  $t\text{-value} = 1.733$ ,  $p < 0.1$ ); thus, H<sub>4</sub> is supported. Also, Hypotheses H<sub>5</sub> is supported by the significant positive impact of urge to buy impulsively on impulsive buying behavior ( $\beta = 0.710$ ,  $t\text{-value} = 13.460$ ,  $p < 0.001$ ).

It is interesting to note that unlike the direct effect (H<sub>3b</sub>), the indirect effect of discounted price was statistically significant on enjoyment. This might be owing to the fact that the indirect effect could be

expressed as a shared outcome where urge to buy impulsively was strengthened through combination of enjoyment with discounted price.

## 6. Conclusions and implications

This research established a theoretical model on restaurant consumers' cognition affect emotion and impulsive buying behavior in social commerce. Particularly, the role of mediation that enjoyment and urge to buy impulsively play in social commerce environment was also examined. The analysis results revealed some interesting facts. Firstly, serendipitous information and scarcity message had statistically significant impacts on enjoyment and ( $H_{1a}$  and  $H_{2a}$  were supported). These results show that serendipitous information and scarcity message play an important role that stimulating consumers' enjoyment. Secondly, serendipitous information and scarcity message, also, had statistical significance on urge to buy impulsively ( $H_{1b}$  and  $H_{2b}$  were supported). Not only they arouse enjoyment but also they directly influence urge to buy impulsively. This means that serendipitous information and scarcity message are important factors spurring urge to buy impulsively. Thirdly, on the contrary to this, discounted price not directly affected urge to buy impulsively ( $H_{3b}$  was not supported). Surprisingly, this is an unexpected result. When a simple regression analysis was performed by setting discounted price as an independent variable and urge to buy impulsively as a dependent variable, the path coefficient in  $H_{3b}$  was exhibited to be positively significant. This is probably because the variable of discounted price had a relatively smaller influence than the variables of serendipitous information or scarcity message, and was thereby shown in a slight minus sign. Discounted price, however, affect enjoyment ( $H_{3a}$  was supported). Through enjoyment, discounted price have an effect on urge to buy impulsively. Fourthly, enjoyment were revealed to be statistically meaningful factors affecting urge to buy impulsively ( $H_4$  was supported). This indicate that when consumers are aware of enjoyment from various aspect, enjoyment do a mediating role on urge to buy impulsively. Fifthly, urge to buy impulsively exhibited a strong impact on impulsive buying behavior ( $\beta = 0.710$ ,  $t$ -value = 13.460), which represent that urge to buy impulsively is predominant variable in prior process of impulsive buying behavior. This result have something in common with prior research (Park et al. 2012; Verhagen & van Dolen, 2011).

To be short, in impulsive buying behavior via social commerce, the serendipitous information and scarcity messages were revealed to be greater than discounted price. This study contributes to the literature in several ways. First, this study develops the theoretical implication of restaurant consumers in social commerce within the context of impulsive buying behavior. Actually, there are little study on social commerce has concentrate on irrational purchaser. Hence, our research expand study of impulsive buying behavior in hospitality and social commerce context. Second, this study recovers new variables which influence urge to buy impulsively. Serendipitous information and scarcity messages are important factors which evoke urge to buy impulsively.

Also, there are several practical implications. First, this study suggests how serendipitous information and scarcity message are significant and efficient in impulsive buying behavior. Thus, this research indicates that marketer need to find a way how augment scarcity and serendipity of customer. Second, authors show important role of perceive enjoyment in impulsive buying behavior.

The limitation of this study is that this research considers only restaurant products, not various items which is sold in social commerce. There are different buying behaviors depending on what kinds of products which customers purchase. Hence, future researches may need to consider various types of items in social commerce.

## Acknowledgement

This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2013S1A3A2043345).

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