Exploring Korean Collegians' Social Commerce Usage: Extending Technology Acceptance Model with Word-of-Mouth and Perceived Enjoyment

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우리나라 대학생의 소셜커머스 이용에 대한 탐색: 구전효과와 인지적 즐거움으로 확장한 기술수용모형의 적용

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Abstract Social commerce is a combination of social media and shopping. Social commerce, based on Web 2.0 technologies, has the various potentials, which is the factor attracting customers. In Korea, collegians are more active user of social media, in turn, are estimated more active customer in social commerce context. Present research explored what made Korean collegians use social commerce with extending technology acceptance model(TAM) with word-of-mouth(WOM) and perceived enjoyment(PE). We found that WOM affected indirectly the intention to use(ITU) with mediating PE, in turn, PE has a positive effect on the all of constructs in TAM. Accordingly, TAM extended with WOM and PE is validated in social commerce context. Finally, based on the findings, implications and suggestions for future studies are discussed.

Key Words : Social Commmerce, Technology Acceptance Model, Word-of-Mouth, Perceived Enjoyment

요 약 소셜커머스는 소셜미디어와 쇼핑의 결합이다. 웹 2.0 기술에 기반을 둔 소셜커머스는 다양한 잠재력을 가지고 있고, 이러한 잠재력을 통해 소비자를 유인하고 있다. 한국의 대학생들은 소셜미디어 사용에 매우 적극적인데, 소셜커머스 사용에 있어서도 매우 적극적 소비자로 추정된다. 이러한 관점에서 본 연구는 한국 대학생들이 소셜커머스를 이용하게 하는 것이 무엇인지를 밝히기 위해 구전효과(Word-of-Mouth)과 인지적 즐거움(Percieved Enjoyment)으로 확장한 기술수용모형을 검정했다. 연구결과, 구전효과는 인지적 즐거움을 매개하여 소셜커머스 이용의도에 영향을 미치고 있었다. 인지적 즐거움은 기술수용모형의 모든 구성개념들에 긍정적 영향을 미치고 있다. 따라서 구전효과와 인지적 즐거움으로 확장한 기술수용모형은 한국의 소셜커머스 맥락에서 유효함이 입증되었다. 마지막으로 향후 연구를 위한 함의와 제안을 제시했다.

주제어 : 소셜커머스, 기술수용모형, 구전효과, 인지적 즐거움

1. Introduction

Social commerce means social media meets shopping[1]. As known, social media is based on Web 2.0 that uses technologies beyond the static pages of earlier web sites. Web 2.0 features more interactive and collaborative internet that emphasize the social interaction and collective intelligence[2]. The Web 2.0 combines e-commerce to result in social commerce. Generally, most Koreans tend to regard social commerce as group buying or social shopping[3] because most social commerce firms are based on social networking service(SNS) as platform. Accordingly, social commerce aims for more customer satisfaction, user participation and social interaction based on crowd-sourcing, consumer-generated content or live shopping[4].

Collegians are reported most using social media in Korea. According to Korea Communications Commission (KCC) and National Internet Development Agency of Korea (NIDA)[5], 76.8% of collegians (including graduate school) are SNS users, as collegians are most outstanding user of social media in Korea. Thus, collegians could be estimated more active and heavier social commerce user.

Present research explores what makes Korean collegians use the social commerce extending technology acceptance model (hereafter "TAM") with word-of-mouth (hereafter "WOM") and perceived enjoyment(hereafter "PE"). Theoretically, this research aim to suggest extended TAM for a more powerful and robust model. Practically, spreading social commerce, collegians, outstanding users of social media, are analyzed regarding their social commerce behaviors. They are, actually, a powerful potential customer with purchasing power in online market. They are familiar with SNS and social commerce prepares diverse assortment of products for them. Thus, understanding their social commerce behavior gives the practitioners implications for future business.

2. Literature Review and Hypotheses

2.1 Word of Mouth

According to Kim and Prabhakar[6], information about an innovation (e.g., social commerce) "is communicated through certain channels over time among the members of a social system"[7](p. 5). In social network theory[8], informal channels (e.g., WOM) of communication plays a primary role in disseminating information to a market when the services are particularly complex and difficult to evaluate[6, 9]. The service quality of social commerce is difficult to evaluate without firsthand experience. The consumer's uncertain perceptions about social commerce should be influenced by WOM referrals.

WOM is defined as the informal communication directed at other consumers about ownership, or characteristics of particular goods and services and/or their sellers[10]. WOM is a powerful tool at marketing practice due to following[11]: First, WOM is more credible than commercial sources of information controlled by companies (e.g. advertising, sponsorship). Most of our discussions are indeed with friends, family, i.e. people we trust and whose goal is not the promotion of a specific company. Second, WOM is really communication, i.e. the message flow tends to be two-way. Third, WOM provides potential consumers with a description of what the experience would be and is thus considered to be a risk reliever, especially for experience goods. According to Buttle[12], "positive WOM occurs when good news testimonials and endorsements desired by the company are uttered, whereas negative WOM is the mirror image"(p. 4).

In previous studies, WOM plays a predictive role in a lot of transaction researches. Analyzing intention to use e-learning with TAM extended with WOM, Lee[13] reports WOM has a positive effect on PE. Furthermore, Han, Kim, and Lee[14] confirms that WOM has a positive influence on intention to purchase at social commerce. Based on these works, present

study sets forth the following hypothesis:

H1. WOM will have a positive effect on PE.
H2. WOM will have a positive effect on intention to use (hereafter "ITU").

2.2 Perceived Enjoyment

The shopping is a hedonic activity to pursue self-satisfaction. Customers on social commerce act voluntarily and hedonically. They participate in it because they are intrinsically motivated[15]. Accordingly, PE is a key concept to understanding customer's electronic transaction behavior.

The studies of technology adoption define PE as the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use[16].

In previous studies, PE affects positively technology acceptance model (hereafter "TAM") constructs: perceived ease of use (hereafter "PEOU") and perceived usefulness (hereafter "PU")[17], and intention to use technologies[15, 18, 19]. Based on these findings, we hypothesize that:

H3. PE will have a positive effect on PEOU.
H4. PE will have a positive effect on PU.
H5. PE will have a positive effect on ITU.

2.3 Technology Acceptance Model

TAM is a prominent theoretical framework employing for identifying adoption of new technology. TAM is based on two salient behavioral beliefs that affect behavioral intentions: PEOU and PU. Davis[20] defines PEOU as "the degree to which a person believes that using a particular system would be free of effort" and PU as "the degree to which a person believes that using a particular system would enhance his or her job performance"(p. 320).

TAM is valued as a powerful and robust model to explain and predict acceptance of a new technology, whereas TAM has two limitations: First, since the original model aims to be general and parsimonious, it pays little attention to identifying the antecedent of the two salient behavioral belief, PEOU and PU [21, 22]. Futhermore, even though the model is good at identifying factors that influence people's technology acceptance and use, the model cannot fully explain why people accept and use a particular technology[22, 23]. For overcoming these limitations of TAM, this study aims to extend TAM with WOM and PE.

Since Davis[20], the studies employing TAM have made sure that PEOU affects PU and ITU, in turn, PU affects ITU. Accordingly, present study sets forth the following hypothesis:

H6. PEOU will have a positive effect on PU.
H7. PEOU will have a positive effect on ITU.
H8 PU will have a positive effect on ITU.

Based on the above hypotheses, we illustrate the research model in [Fig. 1].
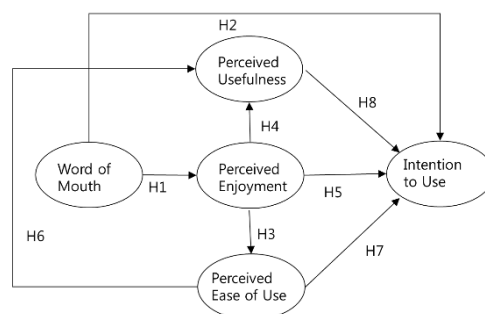
[Fig. 1] Proposed research model

3. Method

3.1 Sample

The participants chosen for the present study were 565 Korean collegians who had connected to and

purchased from social commerce services through a convenience sampling method. The demographic profiles are presented in <Table 1>.

As Table 1 shows, 49.56% of the respondents were male with 50.44% female. In terms of education, 29.03% of the respondents were freshman; 28.85% were junior; 26.85% were sophomore; and 15.4% were senior. Moreover, as for age, the mean is 22.10 with standard deviation 1.93. The oldest 2 person are 28 years old, whereas the youngest 139 person are 20 years old.

〈Table 1〉 Demographic Profile

Demographic	N	Percentage
male	280	49.56
female	285	50.44
freshman	164	29.03
sophomore	151	26.73
junior	163	28.85
senior	87	15.4

3.2 Survey Administration and Measurement

To test the hypotheses, the present study employed a self-reported survey of Korean collegians who had connected to and purchased from social commerce services. Trained interviewers with a major in communication administered the questionnaires. The survey was administered for two weeks from May 27 to June 10, 2013.

This study tests the effects of WOM, PE, PEOU and PU on intention to use social commerce. The measurement instruments consist of a six-part questionnaire that was modified from previous studies: demographic, WOM, PE, PEOU, PU, and ITU. The Appendix shows the scales used to measure these items.

3.3 Data Analysis

This study employed PLS path modeling to test structural causalities among the five underlying constructs: WOM, PE, PEOU, PU and ITU. According to Gefen and Straub[24], "PLS merges a factor analysis with multiple linear regressions to estimate the parameters of the measurement model (item loadings on constructs) together with those of the structural model (regression paths among the constructs) by minimizing residual variance (p. 414)." PLS enables researchers to examine the validity of the discriminant and convergent scales, which is a requisite for examining a new model.

The present study employs the PLS method because it has more advantages than the covariance-based structural equation modeling (SEM) approach such as LISREL and AMOS[25, 26]. Whereas the sample size is emphasized in the SEM approach, PLS is free from it and is appropriate for small sample size research[25-27]. Gefen et al.[27] and Chin[28] suggested that the minimum sample size in PLS path modeling should be 10 times the number of items related to the most complex variable or constructs. Moreover, PLS is a proper method for exploratory research[24-26, 28] due to the availability of PLS to test the new model and theory[27]. Accordingly, social commerce is the latest issue and lacks a robust theory base, so the present study employs the PLS method using the SmartPLS 2.0 M3 package.

4. Findings

4.1 Reliability and Validity of Measurement Scale

To examine the reliability and validity of measurement scales, the present study executes PLS Algorithm on Calculate tap of SmartPLS package[29] to get Cronbach's Alpha(α) and composite reliability

Table 2 shows the overview of PLS quality criteria. In Table 2, composite reliability is greater than the minimum criterion, 0.7; consequently, the reliability of measurement scales is appropriate for analysis. Furthermore the Cronbach's α of constructs are greater than 0.6, the minimum criterion, and indicates reliable values.

〈Table 2〉 PLS Quality Criteria Overview

	AVE	Composite Reliability	R Square	Cronbach's Alpha
ITU	0.799	0.923	0.575	0.874
PEOU	0.762	0.906	0.214	0.844
PE	0.659	0.852	0.109	0.743
PU	0.665	0.908	0.398	0.874
WOM	0.745	0.898		0.830

To examine construct validity of the measurement model, this research employs convergent and discriminant validity[30]. To examine convergent validity, present research considers AVE (Average Variance Extracted), of which greater than 0.50 is valid convergent validity [24, 31]. In 〈Table 2〉, AVE in all constructs is over 0.5. Accordingly, we accept that current research achieves the criterion.

To test discriminant validity, we compare the inter-correlations within latent constructs with the root square of AVE of latent constructs. According to Gefen and Straub[32], if the square root of AVE of each construct is greater than its correlations with the other latent constructs, the discriminant validity is significant. 〈Table 3〉 indicates that the square root of AVE of construct is appropriate to the criterion respectively.

〈Table 3〉 Latent Construct Correlation

	ITU	PEOU	PE	PU	WOM
ITU	0.894				
PEOU	0.457	0.873			
PE	0.616	0.463	0.812		
PU	0.703	0.479	0.586	0.816	
WOM	0.471	0.377	0.330	0.504	0.863

Parentheses show square root of AVE

4.2 Test of Structural Model

〈Table 4〉 indicates the findings of hypotheses test and path coefficients of the proposed research model. In PLS path modeling, the model validity is appraised by the R square value and the structural paths[33]. This research executed bootstrapping to estimate the statistical significance of the construct's path coefficient by means of t-tests.

In the research model, WOM path coefficient of its causal links with ITU is not significant. PEOU-ITU path coefficient is not significant as well. It means WOM and PEOU are not influencing intent to use social commerce in the model.

However, all of the other path coefficients are significant and the findings support their hypotheses. In detail, WOM predicted PE positively (β=0.33, t=2.83, p<0.005, one-tailed test). PE predicted PEOU (β=0.46, t=5.31, p<0.0005, one-tailed test), PU (β=0.46, t=4.72, p<0.0005, one-tailed test) and ITU (β=0.29, t=2.84, p<0.005, one-tailed test) positively. PEOU predicted PU (β=0.27, t=2.22, p<0.05, one-tailed test) positively. PU also predicted ITU (β=0.44, t=3.98, p<0.0005, one-tailed test) positively. It appears in Table 4 with the t-values.

In 〈Table 2〉, the R squares have been shown and indicate that 57.5% of the variance in ITU was accounted for by the constructs in this model. This means PU affect ITU directly, and PE affect ITU directly and indirectly. WOM and PEOU affect ITU

〈Table 4〉 Hypotheses Test Results

		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)	p	Result
H1	WOM→PE	0.330	0.332	0.117	0.117	2.832	p<0.005	supported (one-tailed test)
H2	WOM→ITU	0.131	0.134	0.094	0.094	1.395	–	unsupported
H3	PE→PEOU	0.463	0.467	0.087	0.087	5.312	p<0.0005	Supported (one-tailed test)
H4	PE→PU	0.463	0.470	0.098	0.098	4.727	t<0.005	Supported (one-tailed test)
H5	PE→ITU	0.286	0.291	0.101	0.101	2.838	p<0.005	Supported (one-tailed test)
H6	PEOU→PU	0.265	0.259	0.119	0.119	2.223	p<0.025	Supported (one-tailed test)
H7	PEOU→ITU	0.065	0.067	0.101	0.101	0.641	–	unsupported
H8	PU→ITU	0.438	0.430	0.112	0.112	3.918	p<0.005	Supported (one-tailed test)

indirectly, mediated by PE and PU respectively. PE, resulting in the R^2 of 0.11, is affected by WOM; PEOU, resulting in the R^2 of 0.214, is affected by PE; PU, resulting in the R^2 of 0.40, is affected by PE and PEOU. Respectively 11%, 21% and 40% of PE, PEOU and PU variance are accounted for by the antecedent variables.

5. Conclusion and Discussion

This study tries to explain the Korean collegians' use of social commerce through extending TAM with WOM and PE. We proposed and examined hypothesized paths in the research model. To analyze the causalities among underlying constructs, present study employs PLS path modeling method.

In sum up, WOM-ITU and PEOU-ITU path are not significant, whereas all of the other paths support hypotheses proposed in the research model. The findings mean the model, extended TAM with WOM and PE, is valid in terms of explaining Korean collegians' social commerce usage.

According to existing empirical evidence, PE has stronger impacts on ITU for hedonic systems than utilitarian[34, 35]. Moreover, PE-PEOU path is significant in utilitarian systems[17, 36-39]. We find that PE does not affect ITU and PE-PEOU path is valid. The findings mean Korean collegians perceive social commerce utilitarian system. Accordingly, the industrial practitioners should approach the younger customers in terms of the implication. Furthermore, WOM referral has indirect effect on ITU. The finding results from the fact that Korean collegian customers regard social commerce as group buying and social shopping based on SNS. This is understood in terms of initiative role of SNS on social commerce. Due to emphasizing 'fun and humor marketing strategies,' administered on SNS for attracting customer's attention, WOM is not a direct irritant to ITU but an indirect, mediated by PE. Thus, the practitioner should

consider the substance of social commerce, so-called combination of social media and shopping, and emphasize more social media's potentials (e.g. openness, participation, connectedness, interaction, and share) to affect ITU directly than fun and humor.

Finally, the following is some suggestions for future researches. According to the finding, social commerce has characteristics of a utilitarian system. So, the user's intrinsic motives should be extended with TAM(e.g. extending TAM with uses and gratifications approach [22]). Moreover, in terms of the functional alternative, we need to understand the characteristics social commerce as functional alternative to existing transactional behaviors. Through the works, the industrial practitioners should be expected to get practical implications.

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Appendix: Survey Items

Note: The survey consisted of the following statements that were ranked on a five-point Likert scale: from "very strongly disagree(1)" to "very strongly agree(5)."

WOM (Schumann et al.[40] with some adaptation for the context)

WOM1. Friends of mine have told me positive things about social commerce.

WOM2. Friends of mine already have made good experiences with social commerce

WOM3. Friends of mine have recommended social commerce to me.

PE (Moon & Kim[41] with some adaptation for the context)

PE1. Using social commerce gives enjoyment to me.

PE2. Using social commerce stimulates my curiosity.

PE3. When interacting with social commerce, I do not realize the time elapsed.

PEOU (Davis[20]; Joo & Sang[22] with some adaptation for the context)

PEOU1. Using social commerce is easy for me.

PEOU2. It would be easy for me to become skillful at using social commerce.

PEOU3. My interaction with social commerce is clear and understandable.

PU (Venkatesh & Morris[42]; Thong, Hong & Tam[43] with some adaptation for the context)

PU1. I find social commerce useful in my daily life.

PU2. Using social commerce helps me accomplish things more quickly.

PU3. Using social commerce increases my productivity.

PU4. Using social commerce helps me perform many things more conveniently.

PU5. Using social commerce enhances my effectiveness in my job

ITU (Agarwal & Karahanna[37] with some adaptation for the context)

ITU1. I plan to use the Web in the future.

ITU2. I intend to continue using the Web in the future.

ITU3. I expect my use of the Web to continue in the future