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## Effects of the Flow of an Internet Shopping Mall upon Revisit Intention and Purchase Intention

Kwang-Keun Lee\*, Seong-Ho Ahn\*\*, Hyung-Deok Kim\*\*\*, Myoung-Kil Youn\*\*\*\*

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### Abstract

**Purpose** – The study aims to investigate empirically the effects of the flow of an Internet shopping mall upon consumers' revisit intention and purchase intention.

**Research design, data, and methodology** – The subjects comprised customers of Internet shopping malls. SPSS 19.0 for Windows was used to verify the models and hypotheses. Frequency, factors, reliability, and regression analysis were used.

**Results** – This study classified flow behavior factors of Internet shopping malls into four categories-skills, convenience, design, and mutual reaction-to investigate their influence on flow. Skills and convenience had a greater influence than mutual reaction and design. The flow was most influenced by convenience, followed by skills.

**Conclusions** – First, the subjects comprised those who had made purchases at least once at an Internet shopping mall. Second, the study applied the common flow attributes of past researchers to the Internet shopping mall environment, to gauge customers' e-commerce involvement. Third, skill, convenience, and shopping mall display design affirmatively influenced the computer-mediated environment from the Internet marketing control implications perspective regarding the contents of the marketer's website.

**Keywords:** Flow, Consumers, Revisit Intention, Purchasing Intention, Internet Shopping Mall.

**JEL Classifications:** M3, M10, M30, M31.

### 1. Background and Purposes

These days, Internet shopping market has grown up continuously owing to domestic customers' use of Internet and variety of product sales. In particular, Internet shopping mall is likely to grow up the most quickly than conventional type of commerce owing to computer network environment developed (Youn and Kim, 2010). But, Internet shopping mall could not get profitability from point of view of enterprise: For instance, the largest Internet shopping mall in the nation could overcome deficit operation in 10 years after establishment. In other words, first of all, Internet shopping mall businesses competed each other. Keen competition among businesses of similar type of commodities and services helped consumers spend less switching cost to be concentrated on commodity price. Internet shopping mall businesses should firstly satisfy consumers' desire under the environment to let them buy commodities (Lee et al., 2012).

These days, Internet shopping mall businesses competed each other to keep market hegemony because of reorganized market structure between and in Internet shopping malls (Seol & Youn, 2000). The finding of Statistics Korea in June 2009 concerning domestic Sales of Internet shopping mall businesses showed 11.0% up than that of same quarter of previous year to record total sales of Internet shopping amounting to 4trillion and 843 billion KRW. In particular, retail sales occupied 6.9% in 2007, 7.5% in 2008 and 7.9% in former half of 2009 to increase gradually.

But, foreign studies on comparison of Internet shopping mall depending upon types of shopping mall were rare. Fortunately, some of domestic studies investigated not only selection factors of shopping malls but also preference, satisfaction and reliability of shopping mall types (Seol & Youn, 2000; Sim & Youn, 2013; Cho et al., 2001; Cho et al., 2012; Kim et al., 2012; Kwon et al., 2010; Lee et al., 2012; Youn & Seol, 1999b; Youn, 1999a, b; Youn, 2012).

Most of precedent studies investigated not consumers of Internet shopping malls but consumers who experienced e-commerce not to test behavioral factors of Internet shopping mall consumers exactly. Internet shopping mall needs to investigate effects of behavioral factors upon consumers' purchase. Empirical research of effects of not only consumers' revisit in-

\* First Author. Professor, Ph.D. Department of Business Administration, Kyungdong University, Korea. Tel: +82-10-6655-4485. E-mail: kankun@k1.ac.kr

\*\* Major in Health Industry Distribution, School of Medical Industry, College of Health Industry, Eulji University, Korea.

\*\*\* Major in Health Industry Distribution, School of Medical Industry, College of Health Industry, Eulji University, Korea.

\*\*\*\* Corresponding Author, professor, College of Health Industry, Eulji University, Korea. Tel: +82-10-2263-7292. E-mail: retail21@hanmail.net.

tention but also purchasing intention depending upon types of Internet shopping mall was needed with parameter of the flow to describe comprehensive relation of Internet shopping mall. And, relation between Internet shopping mall and customers had empirical attributes to describe the attributes. Many domestic researchers investigated not only flow behavioral factors having influence upon the flow of Internet shopping mall but also relations between flow and purchasing intention, and studies on revisit intention having influence upon relation between Internet shopping mall and consumers were not enough.

The purpose of the study was to empirically investigate effects of the flow of Internet shopping mall upon consumers' revisit intention and purchasing intention. This study investigated difference of flow behavioral factors of users depending upon not only Internet shopping malls but also specialized Internet shopping malls, and verified mediating effects of not only Internet shopping mall revisit intention but also purchasing intention of consumers who made use of flow. The study classified consumers' flow behavior depending upon Internet shopping mall types to give implications in detailed and practical way. The study conducted test of flow depending upon not only personal characteristics but also Internet shopping mall environment to examine mediation of the flow of continuous shopping mall use upon not only consumers' revisit intention and purchase intention.

## 2. Theoretical Background

### 2.1. Flow

These days, online Internet shopping has grown up rapidly owing to IT technology and consumers' use of Internet. Concept of the flow has described effective interactivity between sellers and online customers under online market environment to be given attention (Csikszentmihalyi, 1990; Clarke and Haworth, 1994). Many researchers have defined and described flow so far. The flow is said to be mental and physical feeling that men have at devotion and taking actions and to be state of the mind that men often experience at deep involvement in cases, things and activities (Du, 2001).

The flow means 'affirmative state that men devote them to a subject according to their interest to forget other things and to enjoy the instance. 'In other words, phenomenon of the flow is said to be 'the highest experience that an individual devotes him or her to specific subject completely to experience with mental and physical excitement'(Csikszentmihalyi, 1975).

Men do not take conscious behavior at flow to integrate behavior and consciousness under concentrated attention and to take natural actions and to control oneself without fear and/or worrying and to take action with confidence. The flow occurs when men take action to overcome by his or her own ability and to keep feedback when cognizing results of behavior each time. Flow that is said to be psychological optimum experience

has theoretical concept of psychological analysis to make use of it at social science, women's studies, literature, business administration, Internet marketing and other sciences. Four kinds of linear variables, that is to say, control, control (attention), intrinsic interest (curiosity) and intrinsic interest manipulated flow (Trevino & Webster, 1992; Webster et al., 1993). However, the flow was said to keep balance of technology and challenge at specific level or higher (Csikszentmihalyi, 1990). The former made concept of personal trait, while the latter understood flow according to state (Kim & Lee, 2006).

"Flow is pleasant intrinsically during network voyage to forget social self-consciousness to concentrate on Internet without external compensation owing to its own interest and to stay in Internet" (Hoffman and Novak, 2000). And, repeated visit to web-site under environment of computer relied upon easy flow, and the flow should be used enough to do marketing activities successfully at online environment. Concept of cognitive absorption was used based on flow theory and some of associated theories to give dimensions, antecedents and consequences of the flow (Table 1) (Agarwal & Karajanna, 2000).

Precedent studies on causal relation between variables of the flow were: Challenge as well as control that was personal technology was used to be precedence factor, and exploring behavior that was consequence gave a model of causal relation concerning the first flow (Ghani, Supnick, and Rooney, 1991). Skill had influence upon the flow, and convenience of the use mediated the flow at causal relation model (Trevino and Webster, 1992). When Internet made appearance, a comprehensive model was made considering background of Internet use, users' personal factors, and Internet environment. The studies investigated variables of the flow from point of view of relations with marketing variables to be suitable to commercial Internet environment. Studies on the flow were actively made in the nation to measure the flow and to investigate relation between flow and customer satisfaction, purchase intention and customer preference, and antecedents and consequences of the flow and to verify flow models (Kang et al., 2011; Du, 2003; Jang, 2007; Jeong & Park, 2007; Song et al., 2006; Jeon & Kim, 2004; Lee et al., 2001; Youn & Seol, 1999a).

As such, theory of the flow was thought to be important to understand Internet consumer behavior from point of view of empiricism. Internet shopping mall consumers did not cognize them not at offline shopping but at online shopping to forget their daily lives and to devote them to shopping behavior to research theory of the flow in the area of Internet marketing.

**<Table 1>** Existing Studies on the Flow

Authors	Concept	Low level dimension	Antecedents	Consequences
Ghani et al. (1991)	Flow	Concentration	Personal technology	Exploring behavior
Trevino & Webster (1992)	Flow	Control Attention Curiosity Intrinsic interest	Control Type of technology Easy use	Attitudes Efficiency Quantity Less obstacle
Hoffman & Novak (1996)	Flow		Skill Challenge Attention Remote sentiment of self Interactivity	Learning Cognized ehavior Control Affirmative and subjective, experience Distortion of the time
Webster & Ho (1997)	Engagement	Attention Curiosity Intrinsic interest	Challenge Feedback Control variety	
Webster, Hackley (1997)	Cognitive engagement	Attention Curiosity Intrinsic interest	Technical characteristics (reliability, quantity and quality) Leader's attitudes Type of technology Leader's control Learner's place number Learner's comfort identifying images Friendship and attitudes of the class	
Agrwal et al. (1997)	Cognitive engagement	Control Attention Curiosity Intrinsic interest Voluntary interest Easy use		Cognized usefulness

## 2.2. Behavioral Factors of the Flow at Internet Shopping Mall

### 2.2.1. Skills

Skill, an individual's ability making use of technology, was needed to experience flow (Du, 2003). The skill that was higher than a certain level to perceive good harmony could produce flow (Hoffman and Novak, 1997). The skill indicated an individual's Internet use ability, and the ones who had high skills experienced flow more (Csikszentmihalyi, 1997).

### 2.2.2. Convenience

Internet shopping mall put an emphasis upon advantages of 'convenient shopping'. Online shopping can save time and efforts remarkably that are needed to investigate, find out and get information of places of commodities. Internet shopping has the greatest advantage of convenient shopping of online shopping. Internet shopping has convenience, for instance, speed of overall process, easy discovery of products wanted, time saving, immediate buying of commodities and being free from finding out of products (Shim et al, 2001; Lee, 2009). Internet shopping's convenience, for instance, total shopping time, convenience and easy seeing of commodities had influence upon e-satisfaction (Szymanski & Hise, 2001).

### 2.2.3. Shopping mall Design

Online shopping mall scale, services supplied and design factors of homepage on Internet had great influence upon consumers' shopping pleasure and usefulness (Loshe and Spiller, 1998). Internet shopping mall's design indicated assortment of the menu of web page, place, color, background, icon size, search and commodity page's length, display methods of the commodities and number of shopping mode. Consistent menu of web page, color, background and organization could give consumers pleasure at visit and voyage at shopping mall to have influence upon information transmission rate and quantity, and sales (Loshe and Spiller, 1998). Display of commodities and number of shopping mode had significant influence upon number of visitors and sales, and consistence of the menu, background color and other design factors had no significant influence (Loshe and Spiller, 1999). And, Internet shopping mall design should not be confused to read at a glance and to let consumers satisfied at easy movement and search of the structure (Eighmey, 1997; Hwang & Lee, 2011).

Factors of attitudes toward website including Internet shopping mall included website design structure, and usefulness and amusement of information (Chen and Wells, 1999). and not only web marking but also website design had significant relation with frequency of use of website (Palmer and Griffith, 1998). At focus group interview (FGI) of the ones who experienced online buying, e-satisfaction relied upon convenience, commercialization,

website design and safety of payment (Szymanski & Hise, 2000).

#### 2.2.4. Interactivity

Interactivity is said to give and take between men and between men and things under given environment. Interactivity indicates not only control of communication between participants at communication but also exchange of roles each other (Rogers, 1986), and responsiveness (Rafaeli, 1988). User's making correction of forms and contents of media environment in real time had influence upon vividness and tele-presence of interactivity with communication technology (Steuer, 1992). Three factors of interactivity, that is to say, interaction rate (information supply and access rate), interaction's mapping (interaction that users cognize naturally) and interaction's scope (number of behavior at given time) had influence upon the flow (Hoffman and Novak, 1997).

#### 2.3. Revisit Intention

An individual's satisfaction and/or dissatisfaction had critical influence upon revisit intention of same product and/or service. Visitor's satisfaction was found to have relation with repurchase intention (Newman & Werbel, 1973). Dissatisfied visitor was unlikely to buy again than satisfied visitor did (Newman & Werbel, 1973). Customers' commitment to enterprises had affirmative influence upon intention in the future (Garbarino and Johnson, 1999). Consumers' voluntary participation was needed in the media so that revisit of consumers who experienced website was important (Jang & Feng, 2007). Consumers who often visited Internet shopping malls to be satisfied with website and to have friendly attitude had revisit intention (Jeon & Kim, 2004; Lee et al., 2012).

As such, precedent studies said that high revisit frequency raised purchasing intention: This study examined variables of purchasing intention according to precedent studies.

#### 2.4. Purchasing intention

Studies on purchasing intention on Internet were actively made as well. Purchasing intention is said to be consumers' future behavior expected or planned to be likely to convert belief and/or attitude into behavior (Engel et al., 1990).

The flow should be easy to visit specific website repeatedly and to increase purchasing intention on Internet (Hoffman and Novak, 1996).

Behavioral intention of decision-making model could decide upon purchasing behavior, and reasonable behavior theory concerning human behavior factors was suggested (Ajzen and Fishbein, 1980). Theory of reasoned action was based on assumption that men were very much reasonable to make use of information systematically. Theory of reasoned action said that men thought of results of action in reasonable way when making decision, and were likely to put the action into practice when thinking of affirmative results (Youn & Kim, 2012; Kim et

al., 2012). Behavior was influenced by behavioral intention that was influenced by not only attitudes but also subjective norm (Ajzen and Fishbein, 1980). Theory of reasoned action developed Ajzen and Fishbein model corrected and expanded to elevate explanation and prediction (Ajzen and Fishbein, 1980).

### 3. Models and Hypotheses

#### 3.1. Design of the Model

Precedent studies investigated attributes of the flow that were precedent factors of shopping malls, for instance, skill, challenge, interactivity, attention, remote practicality, convenience, security, site design, reliability and impulse and so on. And, precedent studies gave outcome of the flow, for instance, exploring behavior, affirmative sense, expectation, purchasing intention, revisit intention, loyalty, word of mouth, satisfaction and so on.

In this study, behavioral factors that consumers experienced flow at Internet shopping mall included skill of personal characteristics, convenience of Internet shopping mall environment, shopping mall design and interactivity between shopping malls (enterprises) and users. This study examined relation among flow, revisit intention and purchasing intention considering relation between flow's behavioral factors and flow, and explored structural changes depending upon Internet shopping mall types.

At first, this study investigated flow's behavioral factors that had influence upon flow, revisit intention and purchasing intention of Internet shopping mall, and verified effects of flow upon behavioral factors depending upon Internet shopping mall types to give practical implications.

#### 3.2. Hypotheses

This study had not only exogenous variables such as skill, convenience, shopping mall design and interactivity, but also endogenous variables such as flow, shopping mall revisit intention and purchasing intention in accordance with precedent studies. In this study, hypotheses and variables had operational definition:

##### 3.2.1. Flow and Behavior Factors

In this study, the flow said strong affection toward Internet shopping mall and consumers' interest and pleasant feeling in the use of shopping malls. Concept of the flow had relation with behavior factors having influence upon the flow:

##### 3.2.1.1. Internet Shopping Mall Users' Personal Traits : Skill

Personal trait under Internet shopping mall environment included skill that Internet shopping mall users were able to make use of the shopping mall and users evaluated their ability by themselves. In this study, hypotheses were used to investigate relation between skill of personal characteristics and the flow:

Hypothesis 1: Internet shopping mall user's skill has positive influence upon the flow.

### 3.2.1.2. Internet Shopping Mall's Environmental Characteristics : Convenience, Shopping Mall Design, interactivity

Internet shopping mall should allow consumers to make use of it conveniently. Shopping mall users were influenced by shopping mall's icon and colors, design, order of arrangement and other display factors, immediate feedback, FAQ, bulletin board and communication between users. This study gave environmental characteristics of Internet shopping mall such as convenience, shopping mall design and interactivity.

The convenience consisted of overall process speed in Internet shopping mall, easy discovery of product wanted, time saving, immediate buying of commodities, and being free from making efforts to find out product. Internet shopping mall design should be in good harmony with overall structure of the display, colors, menu, icon, letters and graphic elements. Interactivity of Internet shopping mall meant changes of forms and/or contents of realtime communication media to measure interaction between consumers and shopping mall (enterprises).

Hypothesis 2: Internet shopping mall user's convenience has positive influence upon the flow.

Hypothesis 3: Internet shopping mall design has positive influence upon the flow.

Hypothesis 4: Internet shopping mall interactivity has positive influence upon the flow.

### 3.2.2. Flow, Revisit Intention and Purchasing Intention

Testing of consumers' future behavioral intention was very much useful to evaluate keeping relations of users at virtual space of Internet shopping mall.

The study measured not only Internet shopping mall revisit intention but also buying intention at Internet shopping mall that could forecast purchasing behavior.

Revisit intention meant Internet shopping mall users' continuous visit intention, while purchasing intention did the users' intention to buy goods through Internet shopping mall. In this study, the subject was consumers who experienced purchase: So, purchasing intention meant repurchase intention.

Hypotheses between Internet shopping mall users' revisit intention, purchasing intention and flow were:

Hypothesis 5: Internet shopping mall user's flow has positive influence upon website revisit intention.

Hypothesis 6: Internet shopping mall user's flow has positive influence upon purchasing intention.

Hypothesis 7: Internet shopping mall user's revisit intention has positive influence upon purchasing intention.

## 4. Methodologies

### 4.1. Measurement Items

The study made correction and supplemented measurement items of precedent studies.

Measurement items of the flow of Internet shopping malls relied upon precedent studies (Hoffman & Novak, 1996). Measurement items of not only skill but also challenge relied upon precedent studies (Hoffman, Novak & Yung, 1999; Kennedy, Ferrell and LeClair, 2001). Shopping mall design relied upon precedent studies (Szymanski and Hise, 2000), and interactivity did precedent studies (Kennedy et al., 2001 Palmer, 2002). Measurement items of revisit intention relied upon precedent studies (Jang & Feng, 2007), and measurement items of purchasing intention did precedent studies (Burke, 1997; Peterson et al., 1997). This study was reorganized by referring to measurement items of precedent studies (see Table 2).

Likert5-point scale was used, for instance, "not true at all (1)", "not true (2)", "common (3)", "true (4)" and "very much true (5)".

### 4.2. Data Collection and Analysis Method

In this study, the ones who experienced purchase at Internet shopping mall made sample frame to verify models. Questionnaire survey was done online and offline 22 days from October 4, 2013 to October 25, 2013. The authors interviewed face to face, and collected 80 copies of questionnaire and 196 copies of answers. 260 copies were used after excluding 16 copies of questionnaire with no answer and/or overlap answer.

SPSS 19.0 for Windows was used. And, frequency, factor, reliability and regression were used.

### 4.3. Features of the Sample

SPSS 19.0 for Windows was used. Frequency analysis was done to investigate not only demographic features of the sample but also use of Internet shopping mall.

The sample had demographic features (Table 3): Number of men (51.9%, 135 persons) was larger than that of women (48.1%, 125 persons). And, the ones in their twenties occupied 82.7% (215 persons) to be majority. Students occupied 30.8% (80 persons). The ones who earned less than 500,000 KRW and/or million to 2 million KRW occupied 61.6% (160 persons) to be majority.

&lt;Table 2&gt; Measurement Items

Section	Questionnaires		References
Purchasing intention	int1	I like to do shopping at Internet shopping mall.	Burke(1997), Peterson(1997),
	int2	I have an idea to buy products supplied by Internet shopping mall.	
	int3	I think that Internet shopping mall is proper place to buy products.	
	int4	I have an idea to spend time actively for use of Internet shopping mall.	
	int5	I have an idea to buy products supplied by Internet shopping mall in the future.	
Flow	flo1	Time seems to elapse very much quickly when I make use of Internet shopping mall.	Hoffman & Novak (1996),
	flo2	I feel pleasant and have interest when making use of Internet shopping mall.	
	flo3	I am sometimes immersed in Internet shopping completely when making use of it.	
	flo4	I sometimes spend more time than I planned to do in the beginning when making use of Internet shopping mall.	
	flo5	I sometimes forgot what to do flow at Internet shopping mall.	
Revisit intention	rev1	I shall visit Internet shopping mall once again.	Jang & Feng (2007)
	rev2	I shall visit Internet shopping mall often.	
	rev3	I have saved Internet shopping mall at bookmark to visit again.	
	rev4	I am mostly satisfied with use of Internet shopping mall.	
	rev5	I shall recommend use of Internet shopping mall to other persons.	
Skill	ski1	I often find out Internet website and/or Internet shopping mall to get access.	Hoffman et al. (1999), Kennedy et al. (2001)
	ski2	I handle Internet such as Explorer, e-mail, blog and personal home page and so on better than other persons do.	
	ski3	I search for information on Internet and do shopping easily.	
	ski4	I am able to make use of Internet shopping mall well.	
	ski5	I think that I know use of Internet shopping mall better than others do.	
Convenience	con1	Internet shopping mall speed was largely quick.	Shim et al. (2001), Szymanski & Hise (2000)
	con2	I was able to retrieve product wanted easily.	
	con3	I could save time by buying products at Internet shopping mall.	
	con4	I was given product bought promptly.	
	con5	I had no difficulty at finding out products wanted.	
Interactivity	INT1	Internet shopping mall takes immediate action against customers' demand.	Kennedy et al. (2001), Palmer (2002),
	INT2	Internet shopping mall provides consumers with product information properly.	
	INT3	Internet shopping mall actively reflects customers' opinions by bulletin board, e-mail, event and others.	
	INT4	I am ready to provide Internet shopping mall with information concerning me to be given product information and/or services, when necessary.	
	INT5	Internet shopping mall's response and reaction are proper at customers' opinions and questions of bulletin board.	
Shopping mall design	des1	Internet shopping mall design has visually good atmosphere.	Szymanski and Hise(2000)
	des2	Internet shopping mall's graphics and tone are in good harmony with shopping mall's images.	
	des3	Letters and/or icons of display of Internet shopping mall have been produced neatly.	
	des4	Information with emphasis on Internet shopping mall, for instance, popular goods and discount events, etc helped me do shopping conveniently.	
	des5	Information supplied by Internet shopping mall was in good harmony.	

**<Table 3>** Demographic Features of the Sample

Variables		Frequency	Ratio (%)
Gender	Men	135	51.9
	Women	125	48.1
Age	less than 20 years old	0	0
	20-23 years old	81	31.2
	24-27 years old	126	48.4
	28-31 years old	8	3.1
	32-35 years old	27	10.5
	36-39 years old	18	7
	40 years old or higher	0	0
Occupation	Students	80	30.8
	Company workers	70	26.9
	Professionals	33	12.7
	Government officials	8	3.1
	Housewives	17	6.5
	Sales and/or service job	26	10
	Production worker and/or technical service	26	10
Monthly income on average	less than 500,000 KRW	80	30.8
	500,000KRW or more - less than million KRW	43	16.5
	Million KRW or more - less than 2 million KRW	80	30.8
	2 million KRW or more - less than 5 million KRW	55	21.2
	5 million KRW or more	2	0.8
Educational background	High school graduate or below	27	10.4
	2-years college graduate and/or undergraduate	43	16.5
	4-years college graduate and/or undergraduate	173	66.5
	Graduate school undergraduate or higher	17	6.5

**<Table 4>** The samples' use of Internet shopping mall

Section		Frequency	Ratio (%)
Internet use time on average a day	less than 1 hour	61	23.5
	1 hour to less than 3 hours	95	36.5
	3 hours or more to less than 5 hours	79	30.4
	5 hours or more to less than 7 hours	25	9.6
	7 hours or more	0	0
Number of years of Internet shopping mall use	less than 1 year	9	3.5
	1 year or more ~ less than 3 years	104	40
	3 years or more to less than 5 years	78	30
	5 years or more ~ less than 10 years	51	19.6
	10 years or more	18	6.9
Times of Internet shopping mall visit	1~2 times	71	27.3
	3~5 times	93	35.8
	6~10 times	65	25
	11~15 times	30	11.5
	16 times or more	1	0.4
Purchase value on average each one time	less than 50,000 KRW	94	36.2
	50,000 KRW or more ~ less than 100,000 KRW	73	28.1
	100,000 KRW or more ~ less than 150,000 KRW	81	31.2
	150,000 KRW or more ~ less than 200,000 KRW	11	4.2
	200,000 KRW or more	1	0.4

The interviewees made use of Internet shopping mall 1 year to less than 3 years (40.0%, 104 persons) to occupy majority (Table 3). The interviewees visited Internet shopping mall a month on average 3 to 5 times (35.8%, 93 persons) to be the highest, followed by 1 to 2 times (27.3%, 71 persons) and 6 to 10 times (25%, 65 persons) in order. The interviewees bought commodities on average each one time, less than 50,000 KRW (36.2%, 94 persons), 50,000 KRW or more to less than 100,000 KRW (28.1%, 73 persons), and 100,000 KRW or more to less than 150,000 KRW (31.2%, 81 persons) in order.

## 5. Hypothesis Test and Analysis

### 5.1. Reliability and Validity of Measurement Items

#### 5.1.1. Exploratory Factor Analysis and Reliability Test of Flow Attributes

In this study, factor analysis was done to investigate validity of the questionnaire, and Varimax rotation was used to find out factors. Chronbach's Alpha coefficient was used to verify validity of the reliability. 0.6 or more of Chronbach's Alpha coefficient was thought to have reliability of measuring instrument. Factor analysis of antecedents found out four factors, that is to say, convenience, design, interactivity and skill (Table 5).

<Table 5> Factor Analysis of Factors and Reliability of Measuring Instrument of Flow Attributes

Measuring items	Component	Eigen value	Common variance explained by the model (%) (accumulation and distribution)	Cronbach's Alpha
convenience	Con3	.947	19.281 (19.281)	.709
	Con4	.865		
	Con2	.857		
	Con1	.721		
	Con5	.712		
design	Dis2	.885	18.547 (37.828)	.886
	Dis3	.833		
	Dis1	.829		
	Dis4	.754		
	Dis5	.653		
interactivity	Com2	.901	17.510 (55.337)	.895
	Com5	.881		
	Com3	.758		
	Com1	.749		
	Com4	.526		
skill	Ski5	.862	12.761 (68.090)	.843
	Ski3	.781		
	Ski1	.705		
	Ski2	.562		
	Ski4	.315		

Factor analysis upon flow, purchasing intention and revisit in-

tion was done (Table 6). Factor analysis upon purchasing intention without INT2 and INT4 was done. Cronbach's alpha coefficient with concept of multi-items was tested to investigate reliability of the questionnaire (Table 6). 0.6 or higher of  $\alpha$  was thought to have reliability at social science studies. At reliability test of each factor, all of the factors were found to have reliability considering 0.6 or higher of  $\alpha$ .

<Table 6> Factor Analysis and Reliability of Measuring Instrument on Revisit Intention, Flow and Purchasing Intention

Measuring items	Component	Eigen value	Common variance explained by the model (%) (accumulation and distribution)	Cronbach's Alpha
revisit intention	Rev2	.889	27.998 (27.998)	.884
	Rev1	.849		
	Rev3	.828		
	Rev4	.780		
	Rev5	.660		
flow	Flo3	.955	27.618 (55.616)	.896
	Flo4	.890		
	Flo2	.816		
	Flo5	.737		
	Flo1	.716		
purchasing intention	Int5	.889	17.940 (73.555)	.779
	Int1	.795		
	Int3	.719		

### 5.2. Hypothesis Testing

#### 5.2.1. Hypothesis 1, 2, 3 and 4 testing (convenience· design· interactivity· skill → flow)

A regression analysis upon effects of flow attributes upon the flow was done to test hypothesis 1, 2, 3 and 4 with independent variables of convenience, design, interactivity and skill, and dependent variable of skill: F value indicating significance of the regression indicated 62.694( $p < .05$ ), and  $R^2$  did 0.496 to have explanation of 49.6% (Table 7). Not only design but also interactivity was not significant ( $P < .05$ ) to have influence in order of convenience and skill.

<Table 7> Hypothesis Test of Flow Attributes and Flow

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient	t	p	R <sup>2</sup>	F
		B	standard error	beta				
Flow	(constant)	3.350	.033		101.848	.000	.496	62.694 (P=.000)
	convenience	.397	.033	.535	12.035	.000		
	design	-.025	.033	-.034	-.765	.445		
	interactivity	-.027	.033	-.037	-.826	.410		
	skill	.337	.033	.455	10.231	.000		



5.2.2. Hypothesis 5 test (flow → revisit intention)

A regression analysis with independent variable of flow and dependent variable of revisit intention was done to investigate effects of flow upon revisit intention and to verify hypothesis 5: Not only F of 9.443(p<.05) but also R<sup>2</sup> of 0.035 had explanation to have significant regression model.

<Table 8> Hypothesis Test of Flow and Revisit Intention

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient	t	p	R <sup>2</sup>	F
		B	standard error	beta				
revisit intention	(constant)	2.868	.185		15.538	.000	.035	9.443 (P=.000)
	flow	.165	.054	.188	3.073	.002		

5.2.3. Hypothesis 6 and 7 Test (Flow-revisit intention → purchasing intention)

A regression analysis with independent variables of flow and revisit intention and dependent variable of purchasing intention was done to inspect effects of flow and revisit intention upon purchasing intention and to verify hypothesis 6 and 7: The regression model had explanation with F of 39.001(p<.05) and R<sup>2</sup> of 0.233 (23.3%). The flow was not significant (P<.05) and revisit intention was significant.

<Table 9> Hypothesis Test of Purchasing Intention depending upon Flow and Revisit Intention

Dependent variable	Independent variable	Unstandardized coefficient		Standardized coefficient	t	p	R <sup>2</sup>	F
		B	standard error	beta				
purchasing intention	(constant)	2.240	.222		10.072	.000	.233	39.001 (P=.000)
	flow	-.083	.047	-.097	-1.747	.082		
	revisit intention	.476	.054	.491	8.831	.000		

5.2.4. Hypothesis Test and Interpretation

Seven hypotheses were used (Table 10):

First, Internet shopping mall's behavior factors had four dimensions, that is to say, skill, convenience, design and interactivity, to have influence upon the flow. Skill and convenience excluding interactivity and design had significant influence upon the flow. The flow was influenced by convenience and skill in order.

The findings were:

First, not only interactivity but also flow had no influence upon flow to differ from findings of precedent studies: Not only interactivity but also design between consumers and Internet shopping mall had influence not upon flow but upon perception of skill and convenience.

Second, flow of Internet shopping mall had significant influence upon revisit intention.

Third, not only flow but also revisit intention had influence not upon flow but upon revisit intention.

<Table 10> Hypotheses Test Results

Paths			Hypotheses test	Relations	
H 1	convenience	→	flow	adopted	(+)
H 2	design	→		rejected	(-)
H 3	interactivity	→		rejected	(-)
H 4	skill	→		adopted	(+)
H 5	flow	→	revisit intention	adopted	(+)
H 6	flow	→	purchasing intention	rejected	(-)
H 7	revisit intention	→	purchasing intention	adopted	(+)

6. Summary

6.1. Findings and Conclusion

The study investigated difference of flow behavior factors of users at Internet shopping mall and verified mediation effects with consumers' Internet shopping mall revisit intention and purchasing intention through the flow. Empirical analysis was done to investigate consumers who had bought at Internet shopping malls and to verify models based on precedent studies on the flow.

The findings were:

First, not only skill but also convenience excluding interactivity and design had significant influence upon the flow. The flow was influenced the most by convenience followed by skill.

Second, not only interactivity but also design had not influence upon the flow to differ from precedent studies. In Internet environment, not only interactivity between consumers and Internet shopping mall had influence not upon the flow but upon skill and convenience perception.

Third, flow experience at Internet shopping mall had significant influence upon revisit intention.

Fourth, flow and revisit intention had influence not upon the flow but upon revisit intention.

The implications were:

First, this study investigated consumers who bought one time or more at Internet shopping malls. So, the study was valuable from point of view of practical affairs.

Second, this study investigated attributes of the flow under Internet shopping environment to disclose customers' immersion at e-commerce. This study could not find out significant effect of not only design but also interactivity upon the flow experience to differ from precedent studies and to be consistent with findings of Du Jeong-wan (2003). Finding of the study differed from that of most of precedent studies to require careful research on causal relation.

Third, skill, convenience and shopping mall display design under computer media environment had affirmative influence upon the flow that should be reflected to contents of marketer's website. In other words, properly quick loading, retrieval of the

commodities and good looking menu and commodity alignment could produce high skill, convenience and shopping mall design perception to have affirmative influence upon the flow and to reach flow easily.

## 6.2. Limitation and Future Researches

This study had some of limitations despite of scientific and practical implications:

First, the sample could not represent all of consumers from various kinds of classes. In other words, the sample did not include a variety of age groups and occupation to be concentrated on college students and office workers in their twenties and to have possibility of bias. So, future studies should select samples that could represent all of populations.

Second, the study did not keep characteristics of the sample of each business and product in order that had various distribution and many segmentation.

Third, the study selected and measured variables with four kinds of dimensions only that could meet purposes of the study. But, antecedents could include control, easiness to use, attention, long-distance modeling, variety and reliability, and consequences could do exploratory behavior, attitudes, exploratory use and time distortion. So, factors from other points of view should be considered.

Fourth, the study could not verify significant effects of interactivity upon the flow at test of concept model of the flow because of difficulty of measuring method.

Lastly, theory of the flow represented understanding on online consumer behavior to experience flow online and offline. This study examined online flow experience only based on Internet shopping mall. So, future studies should inspect online and offline flow experience to generalize models.

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