

Factors Affecting Individuals' Intentions to Discontinue Social Network Services Use

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ABSTRACT

This study uses the concepts of mental accounting and coupling in consumption to demonstrate a systematic relationship between behavioral costs, sunk costs, coupling, and user intention to discontinue social network services (SNS) use. An analysis of 213 SNS users found that coupling and sunk costs are two major factors that influence an individual's intention to discontinue SNS use. An interesting finding of this study is that the perception of coupling is created by behavioral costs in the context of an SNS. This finding implies that the source of cost perception when perceiving coupling may differ depending on whether the product or service is traditional or web-based. These results contribute to an expansion of the theoretical discussion of individual-level discontinuance intention after adopting SNS by conceptualizing the perception of coupling.

Keywords: Social Networking Services, Perceived Benefits, Behavioral Costs, Coupling, Sunk Cost, Discontinuance Intention

I . Introduction

A social network services (SNS) platform provides a strong and relevant toolbox to promote collaboration, collective intelligent, active participation, and business transactions by providing communications tools between individuals (He et al., 2015; Mouakket, 2015). In a social platform, users are considered as prosumers who can create, share, deliver, and consume a variety of content (Lu and Kim, 2016). The

critical success factors for an SNS platform include the active participation and continuous communication of users (Koh et al., 2007). However, as the relationships in the SNS expand, users may feel overloaded with work, and digital fatigue and techno-stress are produced as a result of the time and effort it takes to retain the existing relationships that have been established via SNS. SNS activities require users to spend their time and effort to update their profiles and to receive current news from them while

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responding to the content posted by their online friends (Bevan et al., 2014; Fox and Moreland, 2015). Thus, the more relationships that a user has, the more the stress that they feel, which may increase the user's intention to discontinue using the SNS, leading to the user's actually stopping their use of the service altogether. Such a phenomenon has been observed within the context of information and communication technologies (ICTs) that are based on platform services. However, within the context of traditional products and services, the main source of the cost that consumers perceive may be not be their time and effort but visible payments at the time of purchase. Thus, the structure of the cost and payment method can vary depending on whether the product/service is physical or web-based. If we see SNS usage as a form of consumption, a variety of costs are incurred. Although SNS is free to adopt, using SNS requires behavioral costs that include the user's time and effort, which may be considered to be similar to a utility service charge (e.g., the cost of heating).

Many studies on technology adoption have argued that after users adopt a new technology, their beliefs can change (Bhattacharjee, 2001) and the value of the usage of the ICT service may be altered over time (Bhattacharjee and Premkumar, 2004). Prior research on initial adoption has identified two important issues (Black, 1983). The first issue is that while the individual's initial acceptance or rejection is relevant to adoption, this is not the final decision that an individual will make. During the confirmation stage, an individual may continue to adopt or may eventually stop using the service altogether. Otherwise, the users can change their minds, adopting the service after a previous rejection or discontinuance. The complete decision processes, therefore, requires a comprehensive framework that encompasses both

the initial adoption decisions as well as the subsequent decisions.

Bhattacharjee (2001) proposed a post-adoption model by arguing that perceived usefulness and satisfaction lead to a continuous usage intention for information technology (IS). He defined a continuance usage intention for an IS as a user's intention to continue using the information system (e.g., online banking). Also, Hsu et al. (2004) tried to explain the continuance intention for IS usage in the context of the web by taking into account the variability of the user satisfaction. Furthermore, Bhattacharjee and Premkumar (2004) presented a longitudinal study that suggested users' expectation-confirmation and satisfaction are the determinants of the continuance of IS usage. Lin et al. (2005) argued that usefulness and satisfaction are the main factors that positively affect the continued use of Internet portal sites. Liao et al. (2007) presented a study that focused on the critical factors that influence the continued use of an online university system. The decision for the post-adoption process involves not only the variables that are affected by the initial adoption decision, but also the factors of the experience and the subsequent communication of the information. These two additional factors can influence subsequent decisions and/or can change previous perceptions or beliefs.

However, users may stop using a technology that has been adopted for a variety of reasons (Roca et al., 2006) Individuals can stop using an information system as a result of one of two conditions: switching or discontinuance (Recker, 2014). Switching indicates that the user has chosen an alternative information system to carry out a specific task (e.g., switching from Facebook to Twitter for social networking). On the other hand, discontinuance suggests that the users do not carry out the same task with any other

system (Bhattacharjee et al., 2012) Previous studies have focused on the intention of continuing usage of IS, but relatively few have address the intention to discontinue usage (intention) (Recker, 2014). Moreover, very few studies explore the structural relationship between a user's psychological state and his/her act of quitting use of an existing service in the context of IS post-adoption. This study investigates the psychological factors that have impact on user's discontinuance decision and their actual behavior on the SNS.

Consequently, this study predicts individual-level intentions to discontinue SNS use by using the concepts of the coupling perception, perceived benefits and behavioral costs, and sunk costs. Coupling is a representative mental accounting method which is a way of thinking in product consumption and payment (Prelec and Loewenstein, 1998). In general, the perceived benefits are known to be an antecedent to decrease the discontinuance intention for SNS usage while costs can increase the intention (Alok et al., 2001; Kim et al., 2007).

The research objectives for this study are follows. First, the impact of the perceived benefits and of the behavioral costs on the coupling perception will be examined. Second, this study explores the effect of sunk costs on individuals' discontinuance intentions for SNS usage. Finally, we investigate how the coupling perception affects SNS usage behaviors. In particular, this study empirically validates whether the coupling perception will increase the possibility that an individuals has the intention to discontinue SNS use.

II. Research Background

2.1. Costs and Decision-Making

Consumers gain the benefits of using a good to compensate for the purchasing cost. If consumers do not use the purchased item, they will thus feel as though they have given up the related benefits and will feel regret due to their inability to benefit from the money that has already been spent (Gourville and Soman, 1998). Therefore, consumers tend to actively use an item that has been purchased in order to avoid feeling that they have wasted their money on said purchase (Okada, 2001). Previous studies on consumer decision making indicate that people often fall victim to the sunk cost effect (Arkes and Blumer, 1985) which violates the basic economic principle that sunk costs should have nothing to do with present decision-making (Frank, 1994).

Since the needs of an individual are infinite but their resources are limited, their perceived costs can influence decision making relevant to their behavior and strategic choices (Zeithaml, 1988). The perceived costs consist of the perception of the additional costs that are needed to make a choice. These costs are not only monetary but also include time, effort, psychological, and emotional factors. Kim et al. (2007) argued that perceived costs should be considered as important factors that affect mobile Internet adoption from a value perspective. In the context of mobile Internet usage, they viewed users as both technology users and as service consumers, which is different from the traditional perception of IT usage. That is, users have to expend time and effort to use such services even if their use is a result of choice from a voluntary standpoint. Therefore, the theory of consumer choice and decision-making is useful in determining individual-level IT service usage behavior.

Since SNS services are also dependent on an individual's choice, the perceived costs can play a critical role in the individual-level intention for discontinuing the use of SNS. In particular, an SNS service

requires time and effort on the part of the users to update their profiles and to receive current news from and respond to SNS friends. This behavioral cost appears to be different from a monetary cost that is needed to purchase a traditional product. Hence, the major source of the cost should be to consider that the consumption of traditional and SNS products is different. This study uses the theory of consumer choice and rationality in their decision making to explore the impact that cost-related factors can have on individuals' intention to discontinue SNS use.

2.2. Coupling Perception and ICT's Usage Behavior

Mental accounting is the framework of the decision making process to calculate costs and benefits related to consumer choice (Thaler, 1999). This framework is based on the value function proposed by Tversky and Kahneman (1981). Coupling is one of the representative mental accounting methods. Prelec and Loewenstein (1998) argued that coupling is an occurrence where there is a strong mental linkage between costs and benefits in the mind of the individual while a weakening of that linkage is referred to as decoupling. Further, Prelec and Loewenstein (1998) defined the connection between the transaction costs and the benefits as coupling.

When consumers purchase goods and services, they feel pressured to use them because they have paid for them. A higher perceived cost results in

a higher coupling effect. Thus, coupling reflects the consumers' evaluation of the explicit costs and of the degree of visibility of the payment that they perceive when they make a purchasing decision. For example, when consumers pay in cash (very visible), they feel certain burden and coupling increases. However, when they use a credit card for a payment, which is not visible since the payment will take place about one month later, decoupling occurs. When users upload content to an SNS service, they may perceive their costs in terms of the time and effort. Whenever users perceive such SNS activities to be time consuming, the coupling perception appears. That is, they may feel a burden because they should spend much time doing their SNS activities, which is perceived as a big cost.

However, in the case of traditional products, coupling can be reduced over time through consumption since the payment has already been performed at the time of purchase. On the other hand, in the case of an SNS, coupling may not be lowered over time but might even increase since the time and efforts that is needed whenever SNS users engage with the services. Therefore, the structure for coupling in ICT service usages may be different from that of coupling in traditional products. <Table 1> shows a comparison between the two different environments in terms of the perception of coupling. In short, coupling is the individual's evaluation of the costs that occur when he or she decides to purchase or to use products/services. In addition, the coupling perception for an ICT service has a notice-

<Table 1> Comparison of the Coupling Perception Structure of Online/Offline Environments

Environment	Object	Payment type	Payment frequency	Reversal of decision making
Offline	Products/ Services	Monetary	One-time (explicit)	Irreversible
Online	Services	Non-Monetary (e.g., time, effort, psychological cost)	Frequent/continuous/endless (implicit)	Reversible

able difference in that the initial (purchasing) cost is very low but the operating (maintenance) cost after adoption or acceptance is relatively high. Therefore, in the context of an SNS service, the different structure of the coupling perception over time is expected to affect the individual-level intention to discontinue using the service.

III. Research Model and Hypotheses

3.1. Research Model

The research model and the hypotheses in this study are based on a behavioral cost-benefit approach to consumer behavior (Verhallen and van Raaij, 1986). In order to understand why SNS users stop using the service after the initial adoption, a behavioral model based on the cost-benefit trade-offs of the behaviors is hereby proposed and used.

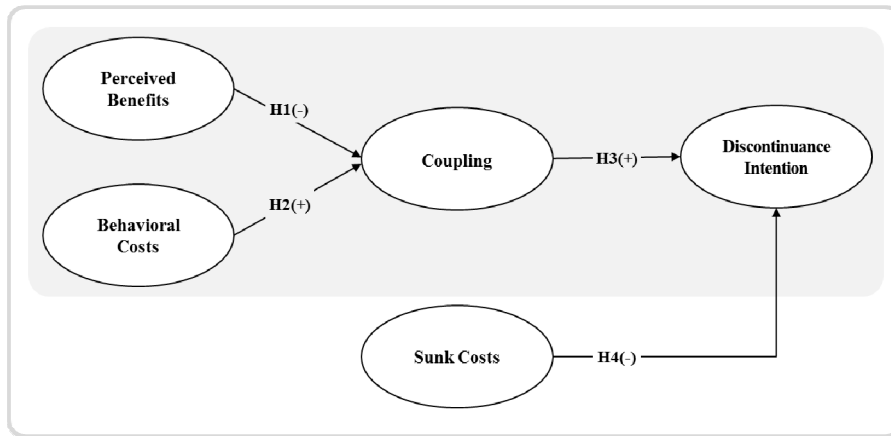
The definition of a specific behavior in psychological and economic models has received less attention than the definition of the constructs that determine a behavior (Verhallen and van Raaij, 1986). Verhallen and Pieters (1984) distinguished goal acts from instrumental acts with goal acts defined as acts that are performed to arrive at a state that is desirable for the actor. Instrumental acts that bring an individual closer to a goal will be preferred unless the costs are too high. In other words, instrumental acts are substitute ways for reaching a goal.

The behavioral price of an instrumental act is the time and the physical energy (effort) expended on said act. For instance, a shopping trip takes time and effort, and the behavioral costs can be considered to be the prices related to the behavioral budget, e.g., the amount of time and effort allocated to shopping. One may save money by spending time

and effort (do-it yourself products), one may save time by spending money (frozen dinners), or one may save effort by spending money (delivery service). The decision depends on the individual's budget in terms of money, time, and effort that can be expended on the instrumental act.

In order to attain a goal through an instrumental act, a tradeoff between the benefits and the costs of the alternative instrumental acts should be considered. Clawson and Donald (1978) argued that consumer behavior is governed by the outcome of the internal psychological conflict.

Based on the discussions above, SNS users should consider and evaluate the perceived benefits and costs when they use (consume) an SNS service. The major cost factors for SNS usage can be the sunk costs and the behavioral costs. Sunk costs are irreversible costs that have already been incurred (Arkes and Blumer, 1985) while behavioral costs refer to the time and effort expended when using the SNS service. The sunk costs are known to be a traditional factor that decreases the discontinuance intention for a product (Arkes and Blumer, 1985). However, in the context of an SNS, the behavioral cost is more salient for the users, and they perceive coupling due to the frequent and continuous behavioral costs. For an SNS, coupling is a result not of the payment method (fixed cost), but of a behavioral cost (operating cost), which means that such cases are different from those involving traditional products. As a consequence, the coupling perception that is caused by the behavioral costs will increase the intention to discontinue SNS usage. This perspective argues that the perception of coupling is important to gain an understanding of SNS use, and it is caused by a perception of a behavioral cost. In contrast, since traditional products require few behavioral costs over time, the structure for the coupling is different from that of an SNS.



<Figure 1> Research Model

Hence, this study expects that both the coupling perception (by behavioral costs) and the sunk costs will have major effects on the individuals' intention to discontinue SNS use. The research model is shown in <Figure 1>.

3.2. Research Hypotheses

Coupling is part of a decision-making framework where an individual considers and calculates both benefits and costs (Kahneman and Tversky, 1984). People have a tendency to calculate the benefits and costs that SNS use brings them. Such costs include the time, effort, and psychological costs that are incurred. The SNS usage enables SNS users to exchange information, connect people, enhance emotional attachment, and increase social capital (Middleton et al., 2014; Mouakket, 2015). That is, an SNS provides efficient tools and a platform that can fulfill the social needs of an SNS user (He et al., 2015). In this manner, SNS provides usefulness and benefits to the users (Koch et al., 2012). Thus, when SNS users perceive the benefits that the SNS platform provides, the psychological linkage between the benefits and costs can take place. When the SNS

users perceive the cost burden by considering all benefits, the coupling perception will start to operate. If the SNS users perceive a high level of benefits that the SNS platform provides for them, they will not be so willing to calculate the cost and benefits of the SNS usage, which would lead to decoupling. Consequently, a high level of perceived benefits will lower the possibility of a coupling perception. Based on the above discussion, we propose the following Hypothesis 1.

H1: Perceived benefits will have a negative relationship with the coupling perception.

According to Thaler (1980) people are sensitive to costs (losses) rather than to benefits. In this case, costs include monetary and non-monetary items. Non-monetary costs can simply be the time and effort to purchase or to use (consume) some goods or services. When an individual has a strong perception of such costs, he/she tends to link and calculate the costs and benefits there of (Thaler, 1999). SNS users, especially active users may consider the behavioral and operating costs to maintain their SNS again and again, and they are likely to feel fatigue or

techno-stress with endless behavioral costs for SNS usage over time (e.g., Fox and Moreland, 2015; Middleton et al., 2014). It is because SNS basically requires substantial operating costs (e.g., time and effort spent to send responses to the content that are uploaded to the SNS). Thus, the behavioral costs that SNS users perceive will have a positive relationship with the coupling perception, which leads to Hypothesis 2.

H2: Behavioral costs will have a positive relationship with the coupling perception.

In the context of a traditional product/service, the perception of coupling can increase a consumer's active use of a product/service since the consumer does not want the mental accounting to finish "in the red" (Soman and Gourville, 2001). That is to say, a high coupling perception can motivate consumers to consume the product that has been purchased more actively (Okada, 2001). However, in the context of an SNS, the perceived coupling allows the SNS users to evaluate why they should invest time and effort in maintaining and using the SNS. They might not be sure about how much time and effort they should spend when using the SNS. The use of SNS requires the users to incur substantial operating costs and frequent behavioral costs whenever the platform is used instead of a one-time payment as a fixed cost. They may feel as if they have paid utility service charges, like electronics or gas charges. Hence, the retrieval of the coupling when using the SNS will increase the possibility of a discontinuance intention for the SNS usage. Based upon the above discussion, we propose the following Hypothesis 3.

H3: Perceived coupling will have a positive relationship with the discontinuance intention of the SNS usage.

The sunk costs are irreversible costs that have already been incurred (Arkes and Blumer, 1985). Garland (1990) argued that a sunk cost has a positive relationship with the decision to escalate a commitment to an ongoing project. A sunk cost is known to be a major contributing factor to an increase in the active use of a product or a decrease in the discontinuance intention for a product (Garland and Newport, 1991; Soman and Gourville 2001). In the area of information systems research, Kim and Kankanhalli (2009) proposed that the time and effort that are spent on a specific IS use will trigger the user's resistance to a new IS implementation due to the status quo bias, which is a preference for the current state of affairs. Sunk costs are crucial to information system discontinuance decisions since users often justify their continued use of a system with concerns over the investment that is required to adapt to a new system (Lending and Straub, 1997). Sunk costs may therefore be a powerful reason to select staying within the status quo (Recker, 2014). In the context of SNS usage, a sunk cost includes the existing social relationships that have been built via SNS as well as time and effort spent toward this. Therefore, if SNS users perceive the sunk costs to be high, their intention to stop the use of the SNS will be low. Hence, we propose Hypothesis 4.

H4: Sunk costs will have a negative relationship with the discontinuance intention of SNS usage.

IV. Research Methodology and Analysis

4.1. Data Collection and Measurement

The survey was conducted by targeting under-

graduate and graduate school students of four business schools in South Korea. Since SNS are very popular for individuals with a young age, and in particular, the majority of the users of such services are in their twenties, it is appropriate to choose university students for the sample. The survey participants were provided a gift card to encourage them to complete the survey. In total, 242 respondents participated in the survey. Out of the 242 respondents, 29 incomplete or invalid responses were discarded and 213 were used for the analysis. SPSS 20.0 and AMOS 20.0 were used for the statistical analysis and for the structural equation modeling.

The operational definitions and measurement of the research variables are provided in <Table 2>. All items were adapted from prior literature and are revised as appropriate for the purposes of this study. The responses were measured by using a sev-

en-point Likert scale, with answer choices ranging from "strongly disagree" (1) to (7) "strongly agree." <Table 3> shows the general characteristics of the survey respondents.

Self-reported data from a single source may include common method bias. Therefore, we performed a statistical test to determine the extent of CMB. To this end, we used Harman's one-factor test to assess the common method variance (Podsakoff et al., 2003). The results of the analysis indicate that different scale items in our study did not load into one common factor, suggesting that a common method bias was not a significant problem in the data that we observed. This analysis revealed there were five latent factors to the theoretical model, corresponding to the five constructs of interest that collectively explained about 83.833% of the total variance. (The first factor represents approximately 29.753% of the total variance,

<Table 2> Operational Definitions and Measures of the Variables

Variables	Operational definition and instruments	References
Perceived Benefits	Perceived degree of needs fulfillment through SNS usage <ul style="list-style-type: none"> • Overall, using the SNS brings many benefits. • SNS provides benefits that I needed. • Using SNS helps meet my needs. 	Self-developed, Based on: Lai (1995)
Behavioral Costs	Time, effort and psychological costs that should be paid to use SNS <ul style="list-style-type: none"> • Overall, I feel a lot of time and effort are required to use SNS. • I feel emotionally drained right after using SNS. • It is hard for me to relax after using SNS. 	Self-developed, based on: Verhallen and Pieters (1984)
Sunk Costs	Perception of the cost that has already been incurred to use the SNS <ul style="list-style-type: none"> • I already spent much time and effort on SNS. • I have paid many costs to use SNS. • I have invested time, effort, and psychological costs to SNS. 	Arkes and Blumer (1985), Thaler (1999)
Coupling	Psychological connection between SNS usage costs and benefits <ul style="list-style-type: none"> • I have compared the benefits and costs of SNS use. • I have thought that there is a connection between the benefits and the costs. • The costs and benefits SNS provides are often considered to be connected. 	Self-developed, based on: Prelec and Loewenstein (1998)
Discontinuance Intention	Intention to discontinue SNS use <ul style="list-style-type: none"> • I will de-register from SNS. • I intend to stop using SNS. • In the future, I will use SNS far less than today. 	Bovey and Hede (2001)

<Table 3> Descriptive Statistics of Respondent Characteristics (N=213)

Features		Frequency	Percent	Features		Frequency	Percent
Gender	Male	112	52.7	Favorite SNS	Facebook	121	56.8
	Female	101	47.3		Twitter	58	27.2
	Total	213	100		Instagram	23	10.8
Age	20-29	118	55.4		Pinterest	2	0.9
	30-39	53	24.9		Others	9	4.2
	40-49	42	19.7		Total	213	100
	Total	213	100		Mainly used network	Wired internet	80
Number of SNS subscription	1	71	33.3	Wireless internet		9	4.2
	2	97	45.5	Mobile internet		121	56.8
	3 or more	45	21.1	Others		3	1.4
	Total	213	100	Total		213	100
Features		Mean		Features		Mean	
Tenure of SNS usage		About 18 months		Average hours of use per day	Own account	About 37 minutes	
Average number of SNS		About 250 friends			Other's account	About 85 minutes	

the second 21.413%, the third 17.438%, the fourth 8.374%, the fifth 6.854%).

4.2. Assessment of Measurement Model

To have models with a good fit, the chi-square normalized by the degrees of freedom (X^2/df) should be less than 3 while GFI (goodness of fit index), AGFI (adjusted goodness of fit index), NFI (normed fit index), TLI (Tucker-Lewis index), and CFI (comparative fit index) should all exceed 0.9, and RMSEA (root mean square error of approximation) should be less than 0.08. For our current CFA model, X^2/DF is 2.108 ($X^2 = 168.628$; $df = 80$), SRMR (standard root mean square residual) is 0.050, GFI is 0.908, NFI is 0.931, TLI is 0.950, CFI is 0.962, and RMSRA is 0.072. Therefore, the model fit was considered to be adequate (Bagozzi and Yi, 1988).

The convergent validity was evaluated for the four measurement scales using the three criteria suggested by Fornell and Larcker (1981). All of the indicator

factor loadings should be significant and should exceed 0.7. Also, the average variance extracted (AVE) by each construct should exceed the variance resulting from the measurement error for that construct (i.e., AVE should exceed 0.5). All of the factor loadings in the CFA model exceeded 0.7 and were significant at $p = 0.001$ (see t -value in <Table 4>). The composite reliabilities ranged between 0.872 and 0.902. Also, the AVE ranged from 0.695 to 0.754 (see <Table 4>), which is greater than the variance due to the measurement error. Hence, all three conditions for convergent validity were met. Discriminant validity describes the extent to which the measurements differ from others that theoretically should not be equal. Fornell and Larcker (1981) recommended a stronger test of the discriminant validity. In this test, the AVE for each construct should exceed the squared correlation between that and any other construct. The factor correlation matrix indicated that the largest squared correlation between any pair of constructs was 0.419, while the smallest AVE was 0.834 (see <Table 5>).

<Table 4> Results of Confirmatory Factor Analysis

Variables	Items	B	SE. B	β	t-value	CR	AVE
Perceived Benefits	pb1	1	-	0.830	-	0.897	0.743
	pb2	1.139	0.073	0.892	15.633		
	pb3	1.157	0.074	0.899	15.733		
Behavioral Costs	bc1	1	-	0.766	-	0.902	0.754
	bc2	1.171	0.094	0.862	12.449		
	bc3	1.260	0.101	0.864	12.460		
Coupling	cp1	1	-	0.932	-	0.894	0.738
	cp2	0.986	0.034	0.966	28.941		
	cp3	1.072	0.041	0.937	26.106		
Discontinuance Intention	di1	1	-	0.812	-	0.895	0.740
	di2	1.143	0.094	0.794	12.128		
	di3	1.303	0.102	0.845	12.832		
Sunk Costs	sc1	1	-	0.909	-	0.872	0.695
	sc2	0.879	0.055	0.868	15.888		
	sc3	0.839	0.062	0.767	13.476		

Note: Item loadings (λ) were significant at the $p = .001$ level

B (unstandardized beta), SE. B (standard error for the unstandardized beta), β (standardized beta), CR (composite reliabilities), AVE (average variance extracted)

<Table 5> Correlation of Constructs and Discriminant Validity

	Mean	Std. D.	AVE	(A)	(B)	(C)	(D)	(E)
(A) PB	3.905	0.980	0.743	0.862				
(B) BC	5.581	0.770	0.754	0.181	0.868			
(C) CP	4.545	1.643	0.738	-0.245	0.195	0.859		
(D) DI	5.692	0.744	0.74	-0.314	0.353	0.419	0.860	
(E) SC	2.491	0.961	0.695	0.057	-0.274	0.121	-0.409	0.834

Note: The shaded diagonal represents the square root of the AVE

PB (perceived benefits), BC (behavioral costs), CP (coupling), DI (discontinuance intention), SC (sunk costs), Std. D. (standard deviation), AVE (average variance extracted)

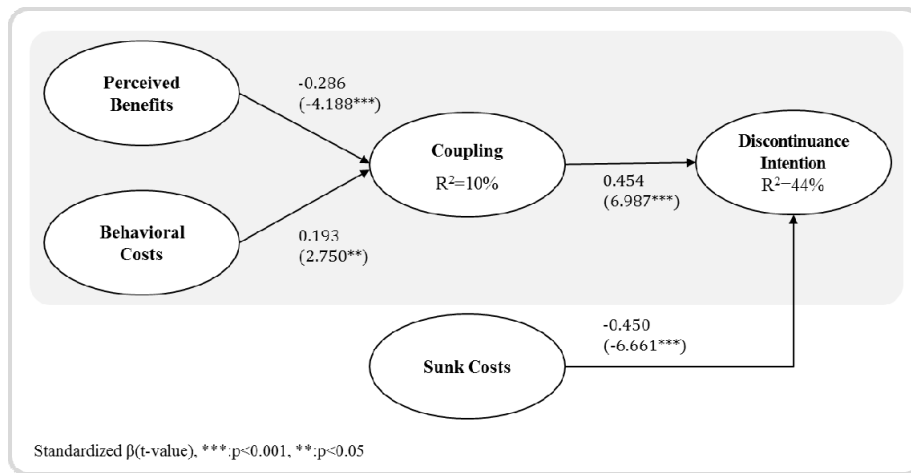
These findings suggest the acceptable convergent and discriminant validity.

4.3. Assessment of the Structural Model

In this structural model, the relative chi-square is 140.287, X^2/df is 1.822 ($df = 75$), GFI is 0.918,

AGFI is 0.871, NFI is 0.943, IFI is 0.973, TLI is 0.963, CFI is 0.973, Standardized RMR is 0.0770, and RMSEA is 0.062. These indexes indicated an acceptable goodness-of-fit between the hypothesized model and the observed data. <Figure 2> shows the results of our path coefficients and their significance.

With respect to the hypothesis test for this study,



<Figure 2> Results of Structural Modeling Analysis

<Table 6> Results of the Evaluation of the Hypotheses

Hypotheses / Paths		B	β	t-value	Results
H1	Perceived Benefits → Coupling	-0.538	-0.286	-4.188 ^{***}	Supported
H2	Behavioral Costs → Coupling	0.515	0.193	2.750 ^{**}	Supported
H3	Coupling → Discontinuation Intention	0.176	0.454	6.987 ^{***}	Supported
H4	Sunk Costs → Discontinuation Intention	-0.277	-0.450	-6.661 ^{***}	Supported

Note: Significance levels: $***p < 0.001$, $**p < 0.05$, B (unstandardized beta), β (standardized beta)

Hypothesis 1 -- perceived benefits will have a negative relationship with coupling -- was supported because the result was statistically significant with a t -value of -4.188 (standardized $\beta = -0.286$, $p < 0.001$). Also, Hypothesis 2, which stated that behavioral costs will have a positive relationship with coupling, was supported since the result was also found to be statistically significant with a t -value of 2.750 (standardized $\beta = 0.193$, $p < 0.05$). Hypothesis 3 proposing that perceived coupling will have a positive relationship with the discontinuance intention, exhibited a statistically significant result with a t -value of 6.987 (standardized $\beta = 0.454$, $p < 0.001$). Coupling can be defined as the thinking that people should pay the corresponding costs in order to receive certain benefits. We could see from these results that SNS

users are generally more sensitive to losses than benefits and that coupling is a decisive factor with a strong, significant effect on the intention to discontinue the use of SNS. Further, Hypothesis 4, which stated that sunk costs will have a negative relationship with the discontinuance intention was statistically supported (standardized $\beta = -0.450$, $p < 0.001$). <Table 6> summarizes the hypothesis testing results.

V. Discussion and Implications

5.1. Discussion of Findings

This study empirically investigated the kinds of cost factors that may influence an individual's cou-

pling perception and the discontinuance intention for SNS use. We first conceptualized the coupling effect by considering the behavioral costs and the perceived benefits of using SNS. Coupling refers to the concept that individuals should pay corresponding costs to gain certain benefits. This study performed an empirical analysis with 213 SNS respondents, and the results are as follows.

First, we found that the perceived benefits decrease the perception of a coupling effect while behavioral costs increase the perception of coupling. That is, when users perceive benefits, they tend to neglect any of the costs, but when the users perceive the costs first, they tend to calculate benefits relative to the costs. Also, both the perceived benefits and behavioral costs had similarly strong effects ($\beta = -0.286$, $\beta = 0.193$) on the perception of coupling. This result is different from that of a previous study (Rogers, 1995) that argued that people are more sensitive to costs than to benefits. However, we need to discuss the main source of the SNS cost that users consider when they perceive a certain degree of coupling. In the context of an SNS, the main cost users perceive in coupling is behavioral costs in terms of the time and effort, which is different from that for traditional, physical products where the main cost which consumers consider is the monetary costs. Furthermore, as shown in <Table 4>, the mean value of the coupling perception was 4.545 in the seven-point Likert scale. This implies that since most SNS users perceive behavioral costs of SNS activities to be very high, such behavioral costs have the potential to be a major source of the coupling perception during SNS usage.

Second, the perception of coupling was found to positively affect the individual-level discontinuance intention for SNS usage. Previous studies (e.g., Gourville and Soman, 1998; Soman and Gourville,

2001) suggested that coupling can trigger active usage behaviors, and if consumers buy a traditional product, they try to actively use the product since they want to benefit from the cost that has already been paid. However, in the context of an SNS, the monetary cost and the payment cost can be minimal or zero because the use of SNS platforms is free. Thus, SNS user behaviors may be different from those of traditional consumer behaviors in terms of the activeness of use (or consumption) after purchasing (or adopting). That is, SNS users may not use the SNS more actively and tend to even stop using the SNS altogether since the amount of additional operating costs that they should pay is relatively high whenever they use the service continuously. The users might feel as if such operating costs were similar to those of utility service charges. These results indicate that web-based free services, such as SNS can be different from traditional products and services in terms of the perception and effect due to coupling.

Another interesting result obtained in this study refers to the significant effect of sunk costs on an individuals' intention to discontinue SNS use. If the perception of sunk costs increases, the strength of the discontinuance intention will be low (Lending and Straub, 1997; Park, 2016; Recker, 2014). This result indicates that sunk costs also play a significant role when using SNS. For example, SNS users must spend much time and effort to upload their profiles and content as well as to interact with their friends online. Such a social connection and social capital that has been established via SNS can be considered to be their sunk costs, which can decrease the discontinuance intention for SNS use. This result implies that SNS users can be sensitive to sunk costs during decision-making with respect to whether or not they stop using SNS, just as traditional product users.

5.2. Implications and limitations

The findings of the study provide several implications that may be relevant to academic scholars and practitioners. In terms of theoretical contribution, first, this study empirically examined the reason for which users tend to stop using SNS services after they have been adopted. This contributes to the expansion of the theoretical framework to explain the discontinuance behavior for ICT services. In particular, this study emphasizes the importance of the perception of coupling in SNS usage. We found that the coupling perception for SNS was caused by behavioral costs in terms of the time and effort expended when using SNS. This SNS context can be different from that of traditional products where individuals' coupling perception involves making a visible payment while SNS requires time and effort. That is, the main source of coupling for web-based e-services would be the operating costs (behavioral costs) whereas coupling for traditional products varies according to the payment method or type (fixed cost) when a purchase is made. However, the analysis result that the effect of perceived benefit on coupling is higher than behavioral costs implies some specific action calls for the further studies on users' psychological states and behaviors of SNS usage.

Second, this study focused on and reflected the SNS characteristics in a new platform where users can create, consume, and deliver content. For the understanding of the results caused by perceived coupling, this study examined the outcomes for coupling as well as the concept of coupling regarding users' online behaviors whereas previous studies predominantly focused on using a cognitive-based approach with a rational perspective toward IS adoption/usage. The concept of coupling allows for an understanding of individuals' intentions to discontinue SNS use,

and this could be a new concept for information systems research. Interestingly, the coupling perception was a powerful factor that influenced the discontinuous intention for SNS usage while the sunk cost was still an influential factor. This study suggests that the effect of coupling on behavior intention can be different for free services, such as SNS, when compared to traditional products/services context. This gives us the opportunity to understand the behavior of SNS users from a more comprehensive point of view and to establish the concept of coupling for e-services.

The practical implications are that, first, SNS service providers should basically consider the benefits and costs that SNS users incur in order to prevent them from perceiving coupling. For example, providers need to save SNS users' time and effort by investing in ease of use and by providing customized/enhanced functions. Furthermore, providers should try to lower the coupling perception for SNS users by providing more benefits to meet users' needs. Second, sunk costs affect an individual's discontinuance intention, so SNS providers need to investigate how sunk costs are formed. It would be beneficial for practitioners to examine some of the key factors that affect sunk costs. Finally, SNS providers need to understand users' emotional factors as cognitive factors that reflect the reason why users want to stop using the services. Behavioral cost factors during SNS usage might be related to emotional factors.

Of course, this study has a couple of limitations. First, this study was conducted as a cross-sectional study even though some of the research variables such as coupling are cumulative phenomena. However, the respondents in this study were surveyed in a specific point of time. Thus, a longitudinal study needs to be conducted for future research. Second,

this study is exploratory in dealing with the concept of the coupling. Hence, the development of a more elaborate instrument for the coupling perception is needed for the further study. In addition, it would be more meaningful to divide the various costs such as time, effort, and mental expense into more specific

categories. Third, the sample of this study may limit the generalization of the findings due to a convenient sample including 213 usable responses only. Finally, some other variables such as a SNS type can be included in a more elaborate model in the future research.

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