

The Relationship between Social Factor, Dependency, Addiction, and Behavioral Intentions of Smartphone

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Abstract

Smartphones have affected considerably people's lives. Some previous studies have examined the dark side of the smartphone trend such as dependency and addiction. Other studies have analyzed the bright side of dependency and addiction. This study is tending to the latter. This paper aims to investigate the link between social factor and behavioral intentions of smartphone users through the roles of dependency and addiction. It is also to identify whether dependency and addiction of psychological factors can affect behavioral intention of smartphone users. We conducted an empirical study consisting of 217 respondents who live in Gyeongnam province in South Korea. The results suggested that social needs and influence have positive effects on dependency and social influence has a positive effect on addiction. Dependency has positive effects on addiction and customer satisfaction. Addiction has a positive effect on customer loyalty. Customer satisfaction has a positive effect on customer loyalty. Customer loyalty has a positive effect on switching barriers. Meanwhile, the impacts of dependency and addiction on switching barriers are not significant. The impacts of dependency on customer loyalty and addiction on customer satisfaction are not significant. Thus, smartphone companies can use psychological addiction to sustain customer satisfaction and loyalty.

Keywords: *Social needs, Social influence, Dependency, Addiction, Customer satisfaction, Customer loyalty, Switching barriers*

1. Introduction

The total sales of smartphones has exceeded 30 million as of March 2013. The total figure is currently expected to reach over 70 million by the end of 2013. The mobile market in Korea tends to considerably invest in the newest smartphones and there is intense competition among the three mobile operators [1]. Smartphones are now necessities in peoples' lives. Users' phone sticks always before going to sleep [2].

On the other hand, social need is one of the decision factors of users' dependency on smartphone because the smartphone has become much more many-sided, allowing them to increase its usage for communication and maintaining the relationship between people [3]. Suki and Suki [4] also suggested that people who use more mobile phones tend to have higher level of knowledge and join in furious social activities. Moreover, past positive experience of smartphone dependency can affect future purchase behavior [5].

Addiction contributes directly to loyalty and reduces the influence of satisfaction on loyalty. According to one study focusing on loyalty in online games, people who are addicted to these games remain loyal even if they are unsatisfied [6]. Kim *et. al.*, [7]

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suggested that user satisfaction and social influence have positive effects on switching barriers of smartphones.

Customer attachment to one organization, a product or a brand is an effort on a long term and requires several steps: first purchase, satisfaction, trust, and loyalty. The mandatory condition to follow these steps and going to the next one is repurchase. Customers will abandon the product or service they are using and will switch to a competitor's offer in case dissatisfaction occurs during any of these stages [8]. Jones and Sasser [9] suggested that the link between satisfaction and loyalty depends on the industry competitiveness and found huge differences between the loyalty of perfectly satisfied customers and those who are almost satisfied, in an industry where there are multiple possible choices for the customers.

There are a few studies on smartphone dependency [10-13] but little is done to analyze the effects of smartphone dependency and addiction on behavioral intentions in the perspective of the bright side. These studies indicate that dependency and addiction of smartphones can have positive effects on behavioral intentions. Thus, the objective of this study is to examine the connection between social factor and behavioral intentions through dependency and addiction of smartphone users.

2. Literature Review

People nowadays seem to become dependent towards smartphone due to its convenience, great camera features, easy applications' installations, and more importantly, it can do most of the computer functions on the go [10]. A smartphone can provide its users some benefits such as social networking apps, gaming, and work or information apps. Consequently, it is crucial for researchers and managers to grasp the cause and effect behind smartphone dependency to understand user behavior and to sustain sales of smartphone and its market share [10].

Consumers has become greatly dependent on smartphones to search useful information by a simple browse and click to access their smartphones as it is with them when they commute, relax at home, travel overseas and so on [14]. The technology evolves so fast that it's conceivable that in a few years we will pay for our shopping, book holidays, watch the kids in school etc. just by using the smartphone [8].

People get emotionally attached to their smartphones. Many of the users define it as being part of themselves, meaning that they always keep it close by, they willingly disturb their activities in order to answer the phone, they feel uneasy when they don't have the phone close by and cannot use it [15]. Today the smartphones are everywhere around us, and "virtual realities" are one step ahead. This need to be permanently connected can easily turn into addiction [8]. Thus, it can be presumed that the dependency and addiction of smartphone users is closely connected.

Stephen [16] argued that after both the physiological and safety needs are satisfied, a new set of needs such as love, affection, and belongingness will emerge. The social needs can be defined as longing for love, affection, and belongingness [16]. Thus, the use of smartphone is classified into two: intrinsic and instrumental where intrinsic are towards social oriented and social motives [17-18]. Social influence from reference group including friends, family, and peers can affect the usage of Internet and mobile phone [19, 20]. Social influence is often seen as a strong influencer that impacts the consumers' dependency on smartphones [20].

In general, a level of customer satisfaction is influenced by the evaluation of a product or service which refers to the overall feelings, or attitude that a person has about it [21]. Affective theories underline how satisfaction and use are affected by the subjective and self-fulfilling value that people gain from interacting with a technology, including fun and enjoyment [22]. Kim *et. al.*, [7] suggested that user satisfaction is related to the benefits

from cognitive and affective perceptions of smartphones and smartphone dependency has a positive effect on user satisfaction.

The heart of every firm is creating loyal customers. Customer loyalty is defined as a commitment to repurchase, recommend, and re-patronize a preferred product or service in the future despite situational influences and competitors' offerings having the potential to cause switching behavior [23]. The concept according to which customer satisfaction is the way to get customer loyalty is unanimously accepted [24].

On the basis of the media dependency theory, dependency on media will lead to future purchase behavior. Similarly, user dependency on smartphone is being conceptualized as showing the propensity of high its usage [13]. The dependency and addiction of users on smartphones can be useful to enhance behavioral intentions if they have good experience of the smartphones. As a result, consumers' expectations for future purchase behavior will be affected by their past experience as they are heavily dependent on smartphones because of the underlying motives [5]. Further, social influence and user satisfaction can positively affect switching barriers of the smartphones [7]. Therefore, the following hypotheses are proposed to examine the connection between social factor and behavioral intentions through the dependency and addiction in smartphone users.

- H1 Social needs will have a positive effect on dependency of the smartphones.
- H2 Social needs will have a positive effect on addiction of the smartphones.
- H3 Social influence will have a positive effect on dependency of the smartphones.
- H4 Social influence will have a positive effect on addiction of the smartphones.
- H5 Dependency will have a positive effect on addiction of the smartphones.
- H6 Dependency will have a positive effect on customer satisfaction.
- H7 Dependency will have a positive effect on customer loyalty.
- H8 Dependency will have a positive effect on switching barriers.
- H9 Addiction will have a positive effect on customer satisfaction.
- H10 Addiction will have a positive effect on customer loyalty.
- H11 Addiction will have a positive effect on switching barriers.
- H12 Customer satisfaction will have a positive effect on customer loyalty.
- H13 Customer loyalty will have a positive effect on switching barriers.

3. The Research

This study is designed to identify how social needs and influence affect customer satisfaction, loyalty, and switching barriers through smartphone dependency and addiction and to provide the implications for psychological factors of smartphone use. The research model is shown in Figure 1.

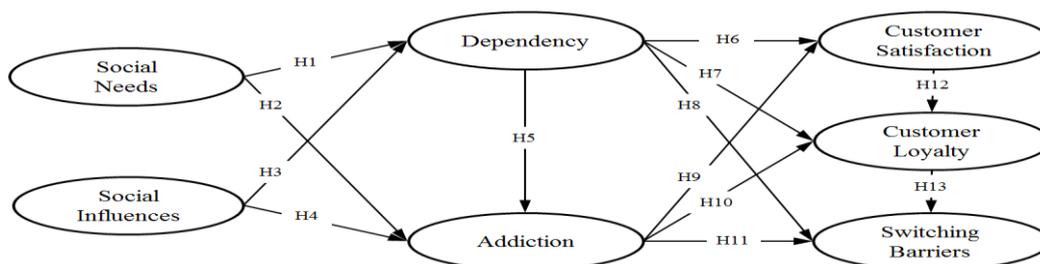


Figure 1. Research Model

For this, a survey was conducted in the West Gyeongnam province from October 5 to 25, 2015 and of the 250 questionnaires, 33 questionnaires were eliminated because of missing data, resulting in a final sample of 217 consumers. The participants were asked to respond to the survey questionnaires based on their most recent experience of smartphone dependency and addiction. SPSS 18.0 and AMOS 18.0 of statistical package were used to analyze the data and test the hypotheses.

A self-reported questionnaire was developed for this study. The survey included the perceptions of social needs and influence, smartphone dependency and addiction, customer satisfaction and loyalty, switching barriers, and demographic information. The study has seven variables, which each has multiple items that are measured by a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). The 26 items used to operationalize the constructs were mainly adapted from previous studies which proved content validity and modified in the context of the research. The items used to operationalize the constructs were mainly adapted from previous studies and modified in the context of the research.

Four items of social needs were composed of relation maintenance among people, relation maintenance among favorite people, news search, and bond with my family [12-13]. Four items of social influence were composed of my friends' liking for my smartphone, the effect of my friends and family on use time of smartphone, purchase of smartphone associated with social group, and sensitivity of specific smartphone recommended [12-13]. Five items of smartphone dependency were composed of more use of smartphone, uneasiness about absence of smartphone, using smartphone all the time, handling study and work with smartphone, and completely dependent on smartphone [12-13]. Three items of smartphone addiction were composed of no control of smartphone's use time, feeling suffering in defect of smartphone, and getting restless and nervous in defect of smartphone [25]. Four items of customer satisfaction were composed of successful choice of my smartphone, my smartphone having functions I need, suitable smartphone to my taste, and satisfactory [26]. Three items of customer loyalty were composed of re-patronization intentions, recommendation intentions, and positive word-of-mouth [27]. Three items of switching barriers were composed of disappointment, expense increase of repair, hard time for use in the case of changing smartphone [28].

Structural equation modeling (SEM) was conducted using analysis of moment structure (AMOS) in order to test the measurement model and path model. SEM is an appropriate statistical method to investigate the hypothesized relationships among social needs and influence, smartphone dependency and addiction, customer satisfaction, loyalty, and switching barriers in this study.

4. Findings

Among 217 respondents, 50.0 percent were male and 50.0 percent were female. 75.2 percent were under 25 years old and 15.9 percent were between 26 to 45 years old. 74.4 percent were college graduates. Among mobile service providers in South Korea, 45.8 percent were SKT, 32.4 percent were KT, and 21.8 percent were LG U Plus.

Confirmatory factor analysis (CFA) was used to evaluate the measures (see Table 1). We used AMOS 18.0 with maximum likelihood estimation to assess the measurement. Except for the chi-square statistic (χ^2 (231) = 359.853, $p = 0.000$), overall fit indices demonstrated a good fit with the data (NNFI = 0.938, CFI = 0.948, RMSEA = 0.051).

Composite reliability values showed that the reliability of each construct is higher than the suggested value of 0.7 by Nunnally and Bernstein [29], indicating that the proposed model has good construct reliability. Fornell and Larcker [30] suggested a more robust method of measuring discriminant validity, in which a correlation between two constructs should be lower than the squared root of the AVE value for any of the two constructs. According to these suggestions, all constructs have discriminant validity.

Table 1. Measurement Model

Constructs	Variables	Std. Coeff.*	SE	t	Composite Reliability	AVE
Social Needs	sneed1	0.741	0.120	9.040	0.827	0.548
	sneed2	0.896	0.117	9.780		
	sneed3	0.649	0.095	8.135		
	sneed4	0.648	-	-		
Social Influence	sinflu1	0.710	0.106	9.320	0.803	0.510
	sinflu2	0.557	0.114	7.410		
	sinflu3	0.827	0.126	10.19		
	sinflu4	0.735	-	-		
Dependency	depd1	0.508	0.061	7.652	0.857	0.608
	depd2	0.800	0.065	13.753		
	depd3	0.845	-	-		
	depd4	0.906	0.069	15.827		
Addiction	addict3	0.748	0.183	6.186	0.678	0.514
	addict2	0.684	-	-		
Satisfaction	sat1	0.740	-	-	0.886	0.662
	sat2	0.846	0.106	12.417		
	sat3	0.913	0.115	13.214		
	sat4	0.742	0.123	10.811		
Loyalty	loy1	0.528	-	-	0.872	0.707
	loyt2	0.967	0.187	8.752		
	loyt3	0.953	0.189	8.745		
Switching Barriers	swb1	0.802	0.201	7.062	0.704	0.448
	swb2	0.574	-	-		
	swb3	0.610	0.184	6.448		

* All coefficients are significant at the 0.01.
 $\chi^2 = 359.853$, $df = 231$, $p = 0.000$, $NNFI = 0.938$, $CFI = 0.948$, $RMSEA = 0.051$

Table 2. Correlation Matrix

	SN	SI	DEP	ADD	SAT	LOY	SWB
SN	0.714						
SI	0.143	0.740					
DEP	0.247**	0.277**	0.780				
ADD	0.145	0.420**	0.513**	0.717			
SAT	0.288**	0.021	0.267**	0.112	0.814		
LOY	0.130	0.190*	0.231**	0.273**	0.495**	0.841	
SWB	0.032	0.138	0.255**	0.283**	0.400**	0.633**	0.670

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
 The square root of AVE value is in bold type on the diagonal.
 SN=social needs, SI=social influence, DEP=dependency, ADD=addiction, SAT=satisfaction, LOY=loyalty, SWB=switching barriers

The path relationships within the research model were analyzed by structural equation modeling (SEM) using AMOS 18.0. The fit indices of the research model shown in Table 2, are acceptable ($\chi^2 (238) = 375.705.270$, $p = 0.000$, $NNFI = 0.936$, $CFI = 0.945$, $RMSEA = 0.052$).

The relationship between social needs and dependency (H1) was accepted by a path estimate of 0.288 ($p = 0.004$). The relationship between social needs and addiction (H2) was rejected by a path estimate of -0.023 ($p = 0.790$). The relationship between social

influence and dependency (H3) was accepted by a path estimate of 0.316 ($p = 0.002$). The relationship between social influence and addiction (H4) was accepted by a path estimate of 0.333 ($p = 0.000$). The relationship between dependency and addiction (H5) was accepted by a path estimate of 0.351 ($p = 0.000$). The relationship between dependency and customer satisfaction (H6) was accepted by a path estimate of 0.252 ($p = 0.002$). The relationship between dependency and customer loyalty (H7) was rejected by a path estimate of -0.017 ($p = 0.772$). The relationship between dependency and switching barriers (H8) was rejected by a path estimate of 0.052 ($p = 0.396$). The relationship between addiction and customer satisfaction (H9) was rejected by a path estimate of -0.051 ($p = 0.639$). The relationship between addiction and customer loyalty (H10) was accepted by a path estimate of 0.209 ($p = 0.011$). The relationship between addiction and switching barriers (H11) was rejected by a path estimate of 0.073 ($p = 0.401$). The relationship between customer satisfaction and loyalty (H12) was accepted by a path estimate of 0.384 ($p = 0.000$). The relationship between customer loyalty and switching barriers (H13) was accepted by a path estimate of 0.587 ($p = 0.000$).

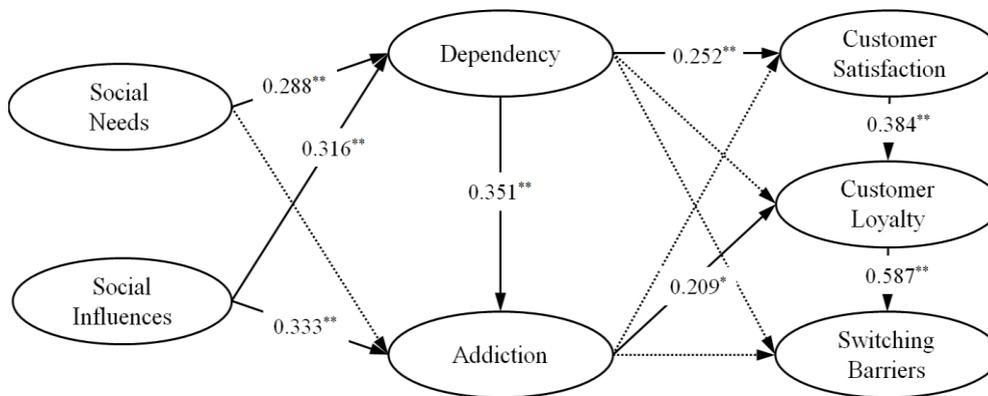


Figure 2. Results of Path Analysis Model

Table 3. Results of Path Analysis

Hypothesis	Std. coeff.	SE	t-value	p-value	Hypotheses
H1: SN → DEP	0.288	0.101	2.852	0.004	Accepted
H2: SN → ADD	-0.023	0.087	-0.266	0.790	Rejected
H3: SI → DEP	0.316	0.101	3.123	0.002	Accepted
H4: SI → ADD	0.333	0.096	3.468	0.000	Accepted
H5: DEP → ADD	0.351	0.077	4.578	0.000	Accepted
H6: DEP → SAT	0.252	0.081	3.121	0.002	Accepted
H7: DEP → LOY	-0.017	0.058	-0.29	0.772	Rejected
H8: DEP → SWB	0.052	0.062	0.849	0.396	Rejected
H9: ADD → SAT	-0.051	0.108	-0.469	0.639	Rejected
H10: ADD → LOY	0.209	0.083	2.529	0.011	Accepted
H11: ADD → SWB	0.073	0.088	0.84	0.401	Rejected
H12: SAT → LOY	0.384	0.073	5.289	0.000	Accepted
H13: LOY → SWB	0.587	0.116	5.083	0.000	Accepted

$\chi^2 = 375.705$, $df = 238$, $p = 0.000$, $NNFI = 0.936$, $CFI = 0.945$, $RMSEA = 0.052$
 SN=social needs, SI=social influence, DEP=dependency, ADD=addiction, SAT=satisfaction, LOY=loyalty, SWB=switching barriers

5. Conclusions

This study empirically tested the effects of social needs and influence on smartphone dependency and addiction, the effects of dependency and addiction on customer satisfaction, loyalty, and switching barriers, the effect of customer satisfaction on loyalty, and the effect of customer loyalty on switching barriers in South Korea. The key findings of this study showed that the roles of smartphone dependency and addiction as a psychological factor are identified to have positive impacts on behavioral intentions (customer satisfaction, loyalty, and switching barriers), as well as the relationship between social factor (social needs and influence) and dependency and addiction is positively verified. Therefore, it is meaningful that smartphone dependency and addiction can play positive roles in making behavioral intentions better.

The conclusions obtained have important implications for academic research and the business sector, derived principally from the analysis of this study. The results showed that social needs and influence have positive impacts on smartphone dependency and addiction. Smartphone dependency and addiction have positive impacts on customer satisfaction and loyalty. Suki [12] suggested that social needs and social influences significantly affect students' dependence on smart phones. A strong relationship also existed between dependence on smart phones and students' purchase behavior. Our finding also showed that future studies need to incorporate social and psychological factors in the previous research models to provide the companies a marketing insight. It is confirmed again that social needs and influence can have positive effects on customer satisfaction, loyalty, and switching barriers through the dependency and addiction.

The results also showed that dependency and addiction do not affect switching barriers but customer loyalty affects. This means that customer loyalty is the best predictor of switching barriers. Previous research has shown that satisfaction may not be the best predictor of customer loyalty and that the presence (or lack) of switching barriers may be the reason a customer stays with (or leaves) a firm [31]. Thus, it is expected that switching barriers will be frequently used to assess the performance of customer loyalty in the future study.

This research has an important contribution for smartphone companies and indicates that profit streams can come from psychological factors of smartphone users such as the dependency and addiction. However, it is important to remember that the companies should focus on the bright side of the dependency and addiction of the users in order to enhance customer loyalty and prevent switch behavior. Based on explanatory investigations of the hypothesized relationships, our findings revealed that the companies are more likely to be interested in smartphone dependency and addiction when making continuous efforts to keep their customers, while Samaha and Hawi [32] suggested that smartphone addiction risk was positively related to perceived stress, but the latter was negatively related to satisfaction with life. Harun *et. al.*, [10] argued that the purchase behavior is the outcome of the dependency on the smartphone. Based on these results, marketers could focus on creating dependency among consumers on smartphone usage based on the consumers' social need, which eventually will promote future purchase behavior in the long run. Thus, the companies should understand two sides of smartphone dependency and addiction in order to formulate and implement marketing strategies.

Although the findings of the study carry significant importance for smartphone companies, several limitations should be noted. As we utilized a limited number of predictors, future research is needed to take into consideration other possible factors which may be significantly associated with social and psychological factors. Another limitation is that we utilized a cross-sectional sample with questionnaires. Longitudinal

data may be more appropriate for this type of research in that the linkage among social factors, psychological factors, and behavioral intentions is established over time.

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