

# The Moderation Effect of Smart Phone Addiction in Relationship between Self-Leadership and Innovative Behavior

Gi-Ryun Park, Gye-Wan Moon, Dong-Hoon Yang

**Abstract**—This study aims to explore the positive effects of self-leadership and innovative behavior that'd been proven in the existing researches proactively and understand the regulation effects of smartphone addiction which has recently become an issue in Korea. This study conducted a convenient sampling of college students attending the four colleges located at Daegu. A total of 210 questionnaires in 5-point Likert scale were distributed to college students. Among which, a total of 200 questionnaires were collected for our final analysis data. Both correlation analysis and regression analysis were carried out to verify those questionnaires through SPSS 20.0. As a result, college students' self-leadership had a significantly positive impact on innovative behavior ( $B = .210, P = .003$ ). In addition, it is found that the relationship between self-leadership and innovative behavior can be adjusted depending on the degree of smartphone addiction in college students ( $B = .264, P = .000$ ). This study could first understand the negative effects of smartphone addiction and find that if students' self-leadership is improved in terms of self-management and unnecessary use of smartphone is controlled properly, innovative behavior can be improved. In addition, this study is significant in that it attempts to identify a new impact of smartphone addiction with the recent environmental changes, unlike the existing researches that'd been carried out from the perspective of organizational behavior theory.

**Keywords**—Innovative Behavior, Revolutionary Behavior, Self-leadership, Smartphone Addiction.

## I. INTRODUCTION

ONLY a walking steadily thinking to arrive to the goal someday is not sufficient. Every step must orient toward the goal and have a practical value. Management environment of today such as development of information technology, global competition and change of the working population characteristics more rapidly and diversely changes than ever. Accordingly, self-leadership represented as autonomy, control right, responsibility and spontaneity is very important to college students as concept of self-management. However, recently some of college students experience not only negatively effects in physical, spiritual health due to smart phone poisoning but also experience a negative effect in

self-management, problem solution and study [4]. Smart phone poisoning means connection to poisoning phenomena habitually using a smart phone without special purpose for and showing anxiety and restlessness without a smart phone [1]. Through this study, studies for various issues in organization behavior to settle college students' problems of smart phone poisoning and improve the indulgence in study and the capacity required in society must be conducted. It must be known which proactive effect has on the performance of individual, organization member and organization itself. In this trend, researches on self-leadership, which is a process to guide self-behavior to a desirable direction by controlling and managing the individual's free will, recently secure attentions in the academic fields and the industrial fields [7]. In addition, since it is impossible to disregard the individual's performance aspect, this study conducted an experimental research to identify a negative effect of smart phone poisoning and the relationship with the organization member's revolutionary behaviors [3], which are more deeply related than any variables, and the concept related with spontaneity and initiative of the self-leadership.

## II. THEORETICAL BACKGROUND

### A. Smartphone Addiction

Firstly, if generalizing the concept of poisoning, problematic phenomena such as loss of control power, increase of continuing use subject to tolerance, withdrawal symptoms, compulsive obsession or dependency according to what is object of poisoning appear, and may be regarded as state causing physical, social, psychological problems to the individual. This study set the object of poisoning as smart phone. A smart phone is an electronic device that the user can use by installing his desiring applications such as camera, game and multi-media function and can easily watch TV broadcasting anytime, anywhere by using DMB (digital multimedia broadcasting) functions as well as computer functions, including internet, information retrieval on a mobile phone [2].

### B. Self-Leadership

Self-leadership is a leadership that the individual controls his free will, establishes his goal and exerts effective power to him by changing his thought and behavior toward the direction to have a positive effect on the organization by his motivation. This study suggested a new concept of leadership through

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viewpoint that it was difficult to improve performance of the organization and its members [9].

### C. Innovative Behavior A. Research Model

Innovative behavior means behavior that the members develop, suggest, apply and execute various ideas which are related with the performance of tasks. It is regarded as more comprehensive concept than creativity focus on creation of a new and useful idea in respect that willingly accommodates and contains even other person's idea or opinions [12].

## III. RESEARCH MODEL AND RESEARCH HYPOTHESIS

### A. Research Model

This study will examine college students' a degree of smart phone poisoning, self-leadership by using a cross-sectional data, and examine about relationship between self-leadership and revolutionary behavior variables, which are established as independent variables, and finally examine the adjustment effect of a negative effect by a smart phone in the relationship between self-leadership and revolutionary behavior. Thus, the modelling is as Fig.1.

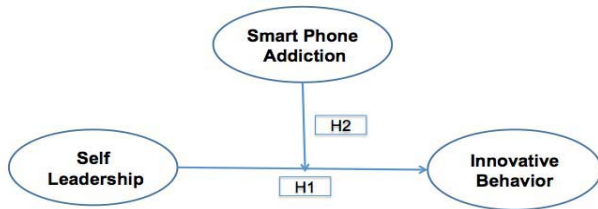


Fig. 1 Research Model

### B. Self-leadership and Revolutionary Behaviors

It can find particular logical explanation for the relationship between self-leadership and revolutionary behavior through an inherent motivation theory. The individual can have an ultimate effect on the revolutionary behavior since searching for the value and fruitfulness enables to achieve a high sense of accomplishment for the individual [9].

Hypothesis 1: College students' self-leadership may have a positive (+) effect on revolutionary behavior.

### C. Control Effect of Smart Phone Poisonings

Control effect of smart phone poisoning hinders the achievement and result by disturbing the individual's control of behavior. The effect that the self-management concept of self-leadership will be controlled depending on the individual's degree of smart phone poisoning in respect of the effect on behaviors of creating idea.

Hypothesis 2: College students' self-leadership may control the effect on revolutionary behavior.

## IV. RESEARCH METHOD

### A. Sample and Data Acquisition Method

Parent population was students who were currently in study in the four-year-course college, and the sample group, that could allow a survey considering convenience of data

collection, was conveniently extracted among students who were studying in 4 universities located at Daegu city. For an objective data collection, the researcher directly visited every university and explained the purpose of questionnaire and distributed 210 copies of questionnaire for the period from Jan. 17, 2014 to Jan. 19, 2014. A total of 200 copies of response were recovered, which were used as data for the final analysis. All questionnaires were designed as 5-point Likert scale. Gender, grade, section, data communication and number of smart device, etc. were adopted as control variables input to verify hypothesis. The characteristics of the sample as object of analysis were as follows. 57% of whole respondents were male, and women formed the rate of 43%. As for majors of the respondents, 10.5% was a humane society, 16% pedagogy, 14% sports science, 53% management science, 4% engineering and 2.5% medical science. As for the grade, the first grade was 2%, second grade 24.5% and third grade 49.5% largest, fourth grade 21% and graduate student 3% least. As for respondents' data communication, 3G was 0.5%, 4G(LTE) 93% and LTE-A 5.5%. Finally, as for the numbers of smart device held, holding of a device was 92.5%, holding of 2 devices 6.5% and holding of over 3 devices 1% showing the respondent rate.

### B. Measuring of Variables

#### 1. Smart Phone Poisoning

When excessive dependency, obsession and absorption on the poisoning object are connected to a severe problem, it is called poisoning [6]. Accordingly, smart phone poisoning means to arrive at the state incapable of controlling by him as a result of excessive absorption in smart phone. This study measured 20 questions on the poisoning scale [13] and a total of 23 questions modified and extracted by Gang Hee-yang, Park Chang-ho [5] by using questions extracted from the contents related with smart phone.

#### 2. Self-Leadership

Self-leadership is defined as a process to exert self-influence through self-setting direction and self-motivation which are necessary for performance of business [8]. This study uses items used in the study by Prussia et al. [11]. A total of 20 questions including 6 questions for behavior-oriented strategy, 6 questions for natural compensation strategies were selected as questionnaire questions.

#### 3. Revolutionary Behavior

Revolutionary behavior means a behavior to adopt, diffuse and practice a new idea [12]. It may be particularly regarded as behavior to adopt recognition and new ideas for problems, find out assistance for the selected ideas and develop particular and proper plans for executing the selected ideas. This study measures 6 questions that Scott and Bruce [12] developed.

### C. Analysis of Reliability and Validity

This study used a SPASS 20.0 statistical analysis tool to verify the suggested hypotheses, and checked reliability and validity of the measuring tool. Cronbach's Alpha Confidence Coefficient was 0.949 for self-leadership and 0.973 for smart phone poisoning, satisfying the standard 0.6 proposed by

Nunnally [10]. The measuring tool was reliable. A varimax-rotated through principal component analysis was used as a factor extraction method which was universally used for analyzing factors of the measuring tool.

Table II shows average, standard deviation and relationship of the research variables and control variables as advanced

stages for verifying hypothesis. Self-leadership showed a significant positive (+) relationship between smart phone poisoning and revolutionary behavior. It was found that a high relationship existed among three factors of self-leadership, smart phone poisoning and revolutionary behavior through the relationship analysis.

#### D. Correlation between Variables

TABLE I  
AVERAGE, DISTRIBUTION AND RELATIONSHIP

Variable	Average	Standard deviation	1	2	3	4	5	6
1	3.91	0.54	1.000					
2	2.99	0.81	-.018**	1.000				
3	3.34	0.81	.131	.049**	1.000			
4	1.09	0.31	.069	.321**	.022	1.000		
5	3.32	1.18	.08	.282**	-.011	.022**	1.000	
6	2.07	0.39	.067	.305**	.201**	.146*	-.019	1.000

Note)1. Self-leadership 2.Revolutionary behavior 3.Smart phone poisoning4.Gender 5.Major 6.Data communication

#### E. Result of Hypothesis Verifications

TABLE II  
REGRESSION ANALYSIS RESULT TABLE FOR HYPOTHESIS

Independent variable	Dependent variable	Hypothesis 1	Hypothesis 2 (adjustment effect)
		Revolutionary behavior	Revolutionary behavior
Self-leadership		.210***	
Smartphone poisoning			-.264***
	t-value	3.020	-3.859
	F-value	9.118***	14.888***
		.044	.070
		.039	.065
	p-value	.003	.000

\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

#### V.CONCLUSION

This study examined a negative effect of college students' self-leadership on the revolutionary behavior relationship through the poison variable. Value of this study can be found in respect that general studies for the relationship with self-leadership and revolutionary behavior which were continued up to now were mainly those to identify a positive effect through variables such as control position, empowerment and job satisfaction, etc. In other words, this study reveals through statistical data that the smartphone addiction recognized as a big issue in Korea in order to find out new influential variables may have a negative impact on innovative behavior among individuals. In addition, this study can serve for generalization of the research of self-leadership and revolutionary behavior since this study, not a research through corporate organization's members, was conducted by using college students as sample. Like the result of analysis, self-leadership gave a positive effect on revolutionary behavior (B=.210, P=.003). It can be analyzed that college students' concept of self-management is high and that have a positive effect on revolutionary behavior that behavior-oriented strategy, natural compensation and cognition-oriented strategy,

etc. as sub-concepts of self-leadership create idea. To lead positive behaviors and create innovative ideas, individuals need to control a free will, set goals, and change thoughts and behaviors in the direction of having a positive effect on organization through self-motivation. This is consistent with the existing research findings that the self-leadership emphasizing the past instructions and control is necessary. It could be however found that a positive effect of self-leadership on revolutionary behavior was controlled depending on a degree of college students' smart phone poisoning as hypothesis 2 is supported (B=-.264, P=.000). It suggests that if the individual raises self-leadership and effectively controls use of smart phone, he can do more revolutionary behaviors. On the contrary, it also suggests that the creation of innovative ideas to achieve good results is limited if self-leadership is low and smartphone addiction is severe. It also has a managerial suggestion that in the relationship between self-leadership and innovative behavior, in the nature of moderating variable, smartphone use should be controlled properly to avoid addiction so that individuals with high level of self-leadership can involve in innovative behaviors.

Limitation of this study cannot predict which results this

study will bring about in the organization of which members' sense of belonging is high and where the level of control and discipline are high since this study was conducted for college students whose autonomy was high. In addition, this study has a high possibility of error occurred since the sample is limited to a region, and a self-report type of questionnaires is used, and measuring is conducted in the same method depending on the individual characteristics. More variables must be used for forthcoming studies, and general researches for identifying effect variables between self-leadership and revolutionary behavior must be conducted. Although there are many researches on the precedence factors of innovative behavior, we still lack of researches on the performance of individuals and organizations through innovative behavior. So further researches need to identify the outcome variables of such a innovative behavior. In addition, future researches will need to reveal the negative effects of smartphone addiction by understanding the severity of smartphone addiction and explore the methods to manage this smartphone addiction.

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