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Pathological Smartphone Use and Its Consequences

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ABSTRACT

Pathological Smartphone Use (PSU) is an emerging phenomenon that needs to be understood. Although there are extensive studies in Pathological Internet Use (PIU) empirical research appears to be still insufficient. It is important to note that Media System Dependency (MSD) Theory assumed that social system and media system as the factors to explain Pathological Internet Use (PIU).The main objective of this research is to extend the MSD Theory with a new construct called personality system and examine its effect on PSU. In this study, the target respondents are the Millennial cohort who are born between 1981 and 1996, often early adopters of new technologies as well as extensive users of the Smartphone. The preliminary phase of the research uses a qualitative approach the gain observable facts which is followed by quantitative data analysis aimed at testing the plausibility of the proposed model among urban Millennial (age 20 - 35 years old). The research introduced an integrative MSD model and it is suggested personality is the main factor behind smartphone pathology phenomenon.

Keywords: Integrative Media Dependency Theory, smartphone pathology

INTRODUCTION

Millennials are the last generation born in the 20th century. They are described as the fastest growing internet populations. According to the Economic Planning Unit report in 2016, the number of internet users in Malaysia in 2015 was 718 for every 1000 people. And for every 1000 people, there are 1418 cellular phones owned (Economic Planning Unit, 2016). Malaysians especially youth have shown drastic increase in accepting online technology and services. Despite the significant growth figures there is insufficient research in identifying

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factors influencing PSU and its impact among Millennials in Malaysia. This study will be a comprehensive study aimed at determining the predictors and consequences of smartphone pathology use among Millenials in Malaysia. This study will be using a modified MSD theory (Hong, Chiu, & Huang, 2012).

In understanding PSU outcomes, several studies stressed on the negative effects of PSU which made it difficult to see the other side of the coins in technological revolution. It raises the doubt if there is the positive effect of using mobile internet. Evidently, it appears that mobile internet does not affect young people in a negative way. It provides users with the opportunity to connect with people well beyond time and space constraints. Young (2007) argues that compulsive behaviour in patients with Internet addiction reduces an underlying emotional tension as well as a reward for future behaviour and some even found a beneficial effect of its use of community life. PSU requires Millennial Teens to constantly communicate with their friends or parents via Facebook, posting pictures to Instagram and reading some tweets from their followers, this, in turn, will make them perceive themselves as good online consumer self-efficacy in shaping their cognitive skill and boosting their self-esteem which increases their well-being and affective nature. Lastly, their behavioural addiction may develop them to be better market mavens.

LITERATURE REVIEW

Smartphone Hardware

The hardware such as the design of the smartphone can influence usage of a smartphone.

Thus, the study hypothesizes:

H1: Mobile device hardware positively influences Pathological Smartphone Use.

Smartphone Software

Consumers who are familiar with their smartphones are quite comfortable using the device. These users also have good knowledge of what m-commerce can offer, and hence will not be attracted to use m-commerce based on the perceived ease of use (Chong, Chan, & Ooi, 2012).

The mobile device is turning into multifunctional devices that are not exclusively utilized for communication purposes; the researcher suggests that due to the varying applications that mobile device provides to their users, this software agent can increase their pathology towards their smartphone (Agrebi & Jallais, 2015).

Thus, the study hypothesizes:

H2: Mobile device software positively influences Pathological Smartphone Use

User's Personality

Among many elements associated with smart phones, personality has been shown to

profoundly influence Internet use (Weibel, Wissmath, & Groner, 2010). Among early researchers who linked personality to the internet is Hamburger and Ben-Artzi (2000), where they measured the level of extraversion and neuroticism among female and male users, and reported extrovert and neurotics are positively related to social-leisure activities such as random surfing. Andreassen et al. 2013 found that agreeableness to be negatively associated with smartphone addiction among college students.

Thus, the study hypothesizes:

H3: Personality of a mobile device user positively influences Pathological Smartphone Use.

Smartphone Pathology

Understanding the major role smartphones are having among young adults it is noted Millennials are more dependent on their smartphones. In 2016, it was found that within 15 minutes of walking, 79 percent of the respondents will start reaching for their phones. It was also reported in the same study, 68 percent of the respondents sleep with their phones switched on. Surprisingly 67 percent of the respondents will check their smartphones even though it is not ringing or vibrating and 46 percent admitted they cannot live without having their smartphones (Roberts, 2016).

Self-Efficacy

LaRose, Eastin and Gregg (2001) proposed that self-efficacy may help to reverse the adverse effects as people have become expert users. According to Hill and Beatty (2011), online consumer Self-efficacy is the degree to which a person perceived that he or she is capable of engaging effectively as a shopper and buyer in the online marketplace. Online shopping self-efficacy is a person's perception of his or her skills in searching for information online, for searching prices online and for making purchases online.

eMaven

It was published by a six-year study of Internet usage among children from 1996 to 2002, (79% from the United States), showed indicates that 25% are heavy users, spending more than ten hours online each week. When smartphone users spend long hours online they are conceived as heavy media consumers, which will entail them to become a market maven. The term ''maven'' describes an individual who knows a great deal about with numerous product choices or product class. While, market mavens on the Internet are widely known as eMavens. It was observed that eMavens share information about a product imperfection and benefits through Internet regularly. Meanwhile, emavens who are heavy media users share their experiences and knowledge on certain products through both online and offline. The eMaven ability to share and gather knowledge from consumers could affect the companies' reputation and brand positively.

Thus, the study hypothesizes:

H4: Smartphone Pathology positively influences self-efficacy.

H5: Smartphone Pathology positively influences market maven.

All of the five hypotheses are shown in Figure I.

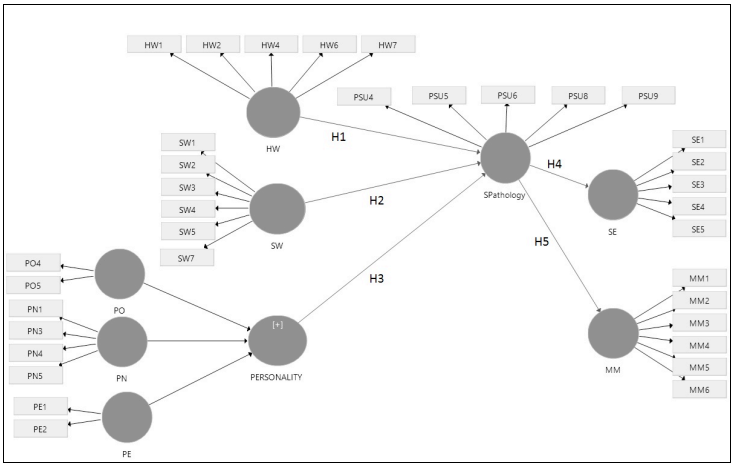

Figure 1. Conceptual Framework

METHODS

Using the snowball method, the data was collected through on-line questionnaire. 272 respondents qualified to proceed until the end. Since this is an exploratory survey, therefore Smart Partial Least Squares (SmartPLS) will be utilised to analyse the data.

The respondents are confined to the millennial ranges from age 20 to 35 years old. Nevertheless, they must have experienced on-line purchases using their mobile device. The mobile device could be a mobile phone, tablet or PDA.

On the basis of exploratory research, six subscales have been adapted and extended to suit the research setting. The scale consists of 52 items covering the subjects of hardware, software, personality, smartphone pathology, self efficacy and market maven. The instrument was employed by using a seven-point Likert scale (1 denotes strongly disagree, while 7 denotes strongly agree). The questionnaire was divided into three broad sections; Section A covers generic questions pertaining to the respondents' smartphone. Section B measures the smartphone systems influencing the smartphone pathology. While section C measures the smartphone pathology. Section D measures the personality that influences smartphone pathology and Section E measures the outcomes of smartphone pathology. At the end of the instruments, Section F covers information about the respondents' demographic backgrounds.

RESULTS AND DISCUSSION

Validity was measured using two criteria: convergent validity and discriminant validity. Convergent validity consists of factor loadings, average variance extracted

(AVE) and composite reliability (CR) as in Table 1 while discriminant validity using Fornell and Larcker as summarized in Table 2.

Table 1
Convergent validity

Construct	Item	Loadings	Composite Reliability	Average Variance Extracted
Hardware	HW1	0.795	0.906	0.660
	HW2	0.790		
	HW4	0.792		
	HW6	0.820		
	HW7	0.862		
Software	SW1	0.799	0.936	0.708
	SW2	0.834		
	SW3	0.917		
	SW4	0.888		
	SW5	0.858		
	SW7	0.742		
Personality			0.735	0.957
P. Extrovert	PE1	0.945		
	PE2	0.752		
P. Neurotism	PN1	0.789		
	PN3	0.845		
	PN4	0.910		
	PN5	0.846		
P. Openness	PO4	0.887		
	PO5	0.866		
S. Pathology	PSU4	0.709	0.866	0.565
	PSU5	0.712		
	PSU6	0.730		
	PSU8	0.808		
	PSU9	0.793		
Self Efficacy	SE1	0.888	0.903	0.651
	SE2	0.888		
	SE3	0.701		
	SE4	0.788		
	SE5	0.754		
Market Maven	MM1	0.773	0.930	0.690
	MM2	0.870		
	MM3	0.802		
	MM4	0.838		
	MM5	0.859		
	MM6	0.839		

In this study, the factor loadings exceeded 0.7 at the acceptance rate of 0.7 (Hair et al., 2010). The factor loadings ranged from 0.701 to 0.917. The AVE of the result indicates that all the variables have a value greater than 0.5 which means that less error remains (Hair et al., 2011). The highest AVE is personality which is 0.957 followed by smartphone software 0.708. The lowest AVE is smartphone pathology which is 0.565. Based on Table I, it is initiated that all of the AVE and CR values are more than 0.5. Fornell and Larcker analysis summarized in Table 2 also shows that all the diagonal values are above their horizontal and verticals values respectively. Hence, all variables achieved reliable and valid results as they are near to 1.0 (Henseler, Ringle, & Sarstedt, 2015).

Table 2
Discriminant validity

	HW	MM	PE	PERSONALITY	SPathology	SW
HW	0.812					
MM	0.400	0.831				
PE	0.198	0.019	0.854			
PERSONALITY	0.110	0.044	0.630	0.680		
SPathology	0.238	0.266	0.345	0.480	0.752	
SW	0.781	0.418	0.108	-0.024	0.093	0.842

Table 3 summarizes the results of the hypotheses. It shows all hypotheses, apart from Smartphone software towards Smartphone Pathology, were supported. Moreover, it also has no effect towards this investigated phenomenon with the effect size value of 0.006. The most significant path is indicated through personality towards smartphones pathology with the t-value of 7.826. The value showed that personality of a person is very much important in determining a person whether

Table 3
Structural Analysis

Hypothesis		Std Beta	Std Error	t-value	Decision	f2 (effect size)	
H1	HW ->SPathology	0.271	0.097	2.800**	Supported	0.039	Small
H2	SW ->SPathology	-0.122	0.114	1.073	Not Supported	0.006	No
H3	PERSONALITY ->SPathology	0.458	0.059	7.826**	Supported	0.262	medium
H4	SPathology -> SE	0.262	0.057	4.577**	Supported	0.073	Small
H5	SPathology -> MM	0.266	0.053	5.047**	Supported	0.076	Small

to be pathology to his or her smartphone or vice versa. This result is also supported by the effect size analysis, which indicates a medium value of 0.262 which is the highest or the most important factor that influenced this research phenomenon. On the other hand, being smartphone pathology seems to influence ones to be more market maven than self-efficacy with the t-value of 5.047 and 4.577 respectively.

CONCLUSION

Our results indicate that the hardware of a smartphone and ones' personality are positively related to smartphone pathology, thereby supporting the view that smartphone pathology influences self-efficacy and market maven. As mentioned by Lorette in 2015, these findings will be beneficial to retailers in strategizing their m-commerce platform and preparing themselves in the world market.

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