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The Determinants and Outcomes of Pathological Internet use (PIU) among Urban Millennial Teens: A Theoretical Framework

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***Abstract*—**The rapid adoption of Internet has turned the Millennial Teens' life like a lightning speed. Empirical evidence has illustrated that Pathological Internet Use (PIU) among them ensure long-term success to the market players in the children industry. However, it creates concerns among their care takers as it generates mental disorder among some of them. The purpose of this paper is to examine the determinants of PIU and identify its outcomes among urban Millennial Teens. It aims to develop a theoretical framework based on a modified Media System Dependency (MSD) Theory that integrates important systems and components that determine and resulted from PIU.

***Keywords*—I**nternet, media system dependency theory, millennial, pathological internet use.

I. Introduction

INTERNET has influenced the way we work, talk, write and act. Millennial Teens are described as the fastest growing internet populations and the amount of time they spend on the computer has tripled in the last ten years [1]. In addition, Millennial is also called as Generation Y. It incorporates the generation born from 1980 and 1999 [2] and they have blended with the media since they are just babies. Internet serves as a strong agent of socialization. It exposes to the Millennial Teens the possibility of making product purchases without having to go to the physical store.

In Malaysia, more than 90% of teens are online in the Klang Valley [3], [4] and Klang Valley is considered as the most industrialized and fastest-growing economic region of the country [5]. This creates concern among their caretakers on their Internet use as these Millennial Teens might encounter some unintended websites or pictures when they surf for information online. Despite the staggering rate of Internet adoption among Malaysians, as to date, there are no study on identifying PIU determinants and outcomes among Malaysian Millennial Teens. There are slightly similar studies on identifying Internet addiction among youth [6] and on validating the Malay version of the Internet Addiction Test (IAD) [7] but these studies suffered in small sample sizes and convenient sampling with other local studies by [5], [8], [3], [4], [9], [10]. In addition, the recent study on Malaysian adolescents or Malaysian teens is only focusing at their online activities which show their preference for entertainment and social networking. Whereas, PIU is a phenomenal issue that can spread into other major online activities such as chatting, shopping, bidding, auctioning and selling.

On the other hand, [11] identify that the positive effects of using the Internet are on communication, social involvement, and well-being. Due to frequent online surfing, they become better decision makers in reviewing, judging and purchasing online products which will influence their parents and peers in terms of their fashion sense, lifestyle and activities. These advantages and disadvantages of Pathological Internet Use (PIU) should be measured comprehensively by identifying its determinants and outcomes among urban Klang Valley Millennial Teens, as Malaysian teens have different upbringing backgrounds compared to other western or East Asian Millennial Teens.

II. Literature Review and Frameworks

A. Internet as Mass Media

There are four major development stages in mass media research. The first stage of mass media research deals with the medium itself; how it works, its accessibility, and unique characteristics. In the second stage, research is being carried out to seek to understand the medium's nature of usage, users, the usage patterns and gratifications being sought. The third stage examines the social, psychological, and physical consequences of dependence on the particular medium such as possible harmful effects, changes in users' perceptions, beliefs, and behaviors. In the last stage, research is being conducted to improve the medium and its contents through new technology breakthroughs or new patterns of use [12]. MSD Theory is "an ecological theory that attempts to explore and explain the role of media in society by examining dependency relations within and across level of analysis" [13].

This study aims to achieve the third stage of mass media research in examining the consequences of dependence on Internet such as its consumerism outcomes among Millennial Teens cognitive, affective and behavioral effects. But prior to

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that, its determinants such as social, media and personality systems must be identified as PIU outcomes may vary in accordance to one's life system [14], the motives of using preferred media [6] and the personality of the users [11].

B. Pathological Internet use (PIU) and Millennial Teens

Pathological Internet Use (PIU) (also called Internet addiction, excessive computer and video game playing, Internet dependency, Internet overuse, problematic Internet use, etc.) has become a widespread problem among youth ages 9–23 [15]. However, in this study it is important to not just perceive excessive Internet use as a harmful substance when in some aspects it may bring growth unto the world's economy and the future generation developments in terms of knowledge generation and technological innovation. Thus, the term Pathological Internet Use (PIU) which is associated with compulsiveness sounds more appropriate to describe this phenomenal technological adoption among urban Klang Valley Millennial Teens.

As reported recently by Ministry of Health Malaysia, almost one-third of 6540 secondary students surveyed had a high level of depression, anxiety and stress (DAS) [16]. This DAS is triggered by PIU and many studies conducted have been contributing to only negative outcomes with the help of Cognitive-Behavioral Theory of Generalized Problematic Internet Use [17], [18], [19], The Uses and Gratifications (U&G) Theory [6], Young Internet Addiction Test (IAT) [20], [21], [22], [23], [24], [25] and Attachment Theory [26]. This means, there is still an inadequate number of a comprehensive study in identifying the determinants of PIU and its outcomes which might generate positive results to the country's e-commerce with a modified Media System Dependency (MSD) Theory.

C. An Original Framework of Media System Dependency (MSD) Theory

The Media System Dependency (MSD) theory is developed by [27]. This theory combines together the interaction of social system, media system and individual changes that form comprehensive effects of media dependency.

Fig. 1 represents the original framework of a MSD Theory. Originally, this theory consists of two independent systems which influence the audiences' degree of dependency (high or low) on certain media. The degree of dependency varies due to the interacting two systems; social system and media system which will later produce three types of outcomes; cognitive, affective and behavioral changes on the audience.

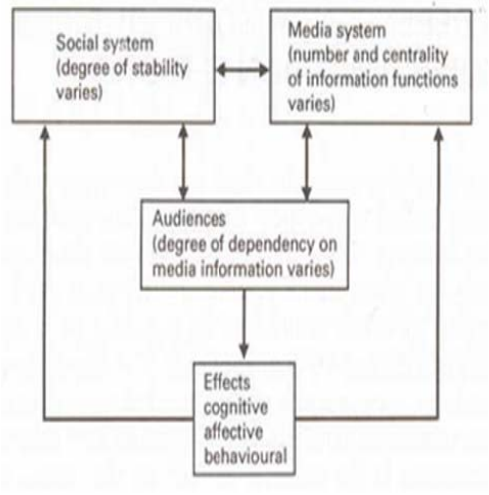


Fig. 1 The framework is the original idea of the media system dependency theory

D. A Modified Framework of Media System Dependency (MSD) Theory

The theoretical framework modified in this study is based on extensive reviewing and mapping of literature which will propose a new system in it, which is the personality system among the Internet users; urban Klang Valley Millennial Teens. According to [28], there are two levels of media dependency; structural dependency and individual media system dependency. Structural dependency in macroscopic views, deals with the relationship among media system, economic system, political system and other societal systems. In contrast, individual media system dependency is microscopic and focuses on the relationship between personal goals and media resources. This study focuses on both level of the media dependency as PIU outcomes may resulted from various changes from social system, media system and personality system of the users.

The modified MSD Theory is illustrated in Fig. 2. As to date, there is no current study on MSD theory by far that deploys personality system to identify the determinants and outcomes of PIU. Some studies on Internet which employ MSD Theory have suffered from small sample sizes and convenient sampling [29], [30], [31], [32], [33]. This study is presenting social system, media system and personality system as its independent variables. The mediating factor is MSD theory and the dependent variables are online consumer self-efficacy (cognitive effect), social self-esteem (affective effect) and market maven (behavioral effect).

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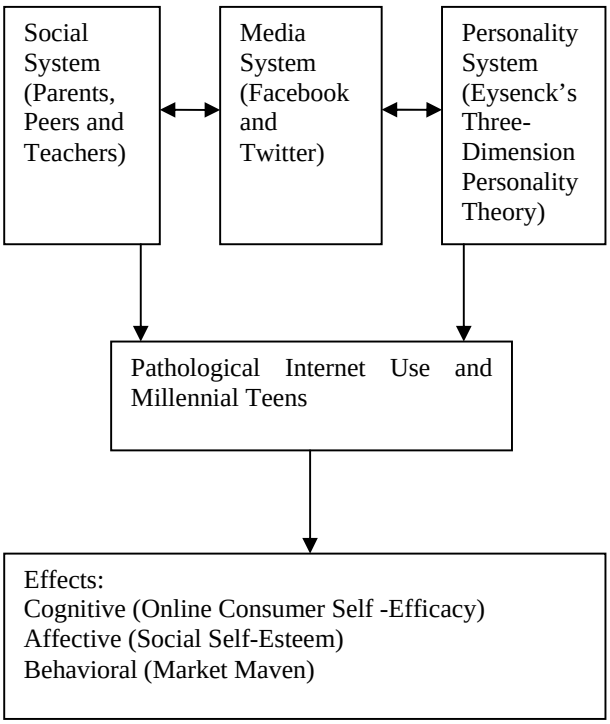


Fig. 2 The framework is the proposed idea of the media system dependency theory

A. Social System

[34] Describe social systems as autopoietic systems that use communication as their mode of reproduction. Autopoietic systems in this study consist of parents, peers and teachers. These players will reproduce and recreate themselves by communicating with the teens.

1. The Parents, Peers and Teachers

The social system comprises of parents, peers and teachers. According to [35], the most common location of internet use is at home (87%), followed by school (63%) and peer network not only provides information about the innovation, but also exerts social pressure to adopt [36]. Parents, teachers and peers play enormous roles in influencing Millennial Teens Internet use as Internet is frequently accessed at home and school. Millennial Teens may surf the Internet frequently for the purpose of doing school works, chatting or gaming online with peers and shopping with parents. This social system that surrounds them may influence their motives and conducts in using Internet.

B. Media System

According to [37], the media system is a network that provides individual with one-way information through three resources. The first resources are information gathering (eg., reporter's reporting), the second resources are information processing (eg., editing/packaging), and the final resources are information dissemination (eg., printing/broadcasting). Millennial Teens who are overusing Internet frequently search for information such as news, celebrities, sports, games, products and current issues which will process lots of information of use to them. Then in the later stage, they will disseminate the selected information through personal communication, tweeting, face booking or chatting via Social Networking Sites (SNS) which are widely offered in the world of Internet.

1. Facebook and Twitter

This study is employing Internet as its media format, which is categorized as online media to examine the determining factor, media system. Most commonly discussed online media nowadays is the social media. Here, the social media of social networking sites (SNS) such as Facebook and Twitter are selected as the medium in determining PIU. Of the hundreds of SNS available on the Internet, Facebook has become the number one social networking site in Malaysia with over 5.1 million Facebook users (as of March 1, 2010) in Malaysia and over 6.2 million unique visitors per month [38]. In addition, the number of worldwide unique visitors of Twitter catapulted from 19 million in March 2009 to 32 million in April 2009 in each day with updates generating up roughly around 18 million [39]. Therefore, these SNS are being studied due to their high frequency of use among Malaysian probably in enhancing their social networking skill.

C. *Personality System*

According to [40], time online is not the only determinants of PIU. This is supported by [11] who suggest that users' personality (e.g., extraversion) makes a difference when interpreting the effects of Internet use on people's well-being. Therefore, personality system is a new determinant to PIU that should be examined as it is the expression of one's emotions, thoughts and behaviors which are unique among Millennial Teens across different areas in the urban Klang Valley regions. To release their anger, teens who engage in aggressive behavior may go online to purchase online games and participate in online gambling. Whereas, narcissistic teens go online with different motives like uploading their photos into Instagram to get immense praises from other social networkers to boost their social self-esteem and gain happiness. When they are being disconnected from the virtual world, they will either express aggression or extend their social circle by disseminating word of mouth regarding the information obtained online as Internet is a highly interactive and informative tool to them.

1. The Eysenck's Three-Dimension Personality Theory

This study is using Eysenck's [41] three-dimension personality theory of extraversion, neuroticism, and psychoticism. This is because Eysenck's model has already been identified as being particularly useful when researching personality and mass media preferences, because of the links that have already been established between these factors and traditional media use; for example, differences in preference for different types of music [42].

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According to [43], personality is a collection of emotional, thought and behavioral patterns that are unique to each person and relatively stable over time. The uniqueness indicates that each person may exhibit different emotion (affective), thought (cognitive) and behavioral patterns among urban Klang Valley Millennial Teens pathological Internet users.

D. Pathological Internet Use (PIU) and Millennial Teens

According to [44], there are four main characteristics of PIU. The first characteristic is an increasing investment of resources (time, energy, money, etc.) in Internet-related activities. The second characteristic is unpleasant feelings (anxiety, depression, emptiness) when offline. The third characteristic is an increasing tolerance to the effects of being online, and the final characteristic is in denial of the problematic behaviors.

Millennial Teens may suffer from aggression [45], [46], psychopathology disorder [22], [47] pathological gambling and gaming [25] and impaired academic performance [48] due to long hours of being online. Literally, all these studies support the notion that teens have greater interest in the internet and greater access to market information [49].

However, according to [35], most 11-16 year olds can block messages from those they do not wish to contact (64%) or find safety advice online (64%). Around half can change privacy settings on a social networking profile (56%) compare websites to judge their quality (56%) or block spam (51%). With such skills, Millennial Teens can hinder themselves from scam, viruses or having hacked accounts and these skills can only be learnt if they excessively use the Internet. [50] provides new research has also found positive influences linked to social networking, including young adults who spend more time on Facebook are better at showing "virtual empathy" to their online friends. Online social networking can help introverted adolescents learn how to socialize behind the safety of various screens, ranging from a two-inch smartphone to a 17-inch laptop and social networking can provide tools for teaching in compelling ways that engage young students.

Millennial Teens experience the Internet as a physical and social space, allowing people to talk, form relationships, discuss issues and work, play games, train, and perform many of the social tasks normally performed in the physical environment. For these reasons, teenagers' Internet use interests us as the academicians and social scientists to conduct a comprehensive study on this PIU outcomes which will be sub-divided into cognitive, affective and behavioral effects.

E. Cognitive

Cognitive as its name suggests is something to do with thinking, brings about certain knowledge, ideas, opinions and beliefs among teens after they received some information from the Internet. One of the beliefs that a Millennial Teen can obtain from PIU is the perception that he is capable to engage effectively as a shopper and/or buyer in the online marketplace [51].

1. Online Consumer Self-Efficacy (OCSE)

[51] provide that there are two types of online consumer self-efficacy (OCSE); online shopping self-efficacy and online technical self-efficacy. Firstly, online shopping self-efficacy is a teen's perception of his level of skills in searching for information online, prices online and making purchases online. When teen searches for information online, they can help their parents in making a decision by comparing prices and the quality of the products involved. Then the second type, online technical self-efficacy is slightly similar to those technological savvy Internet users. Online technical self-efficacy is an adolescent's perceived technical ability to use the Internet to achieve desired tasks. He can navigate within and across websites and to engage in various online activities competently. A technical savvy self-efficacy teen can communicate using the Skype while typing his school work and listening to the song he is downloading. He is considered as a multitasking person due to his passion readiness to adopt the technology.

F. Affective

Affective is an emotional state obtained by a person when they depend and experience something from certain stimuli. Here, the stimulus is the Internet that can disseminate mixture of feeling or emotion on Millennial Teens when they are online.

1. Social Self-Esteem

Social self-esteem is defined as feelings about the self within a variety of social situations [52]. High social self-esteem is described as a person's ability to communicate and relate to other people, to display confidence to be open to others, and to build both personal and professional relationships. In contrast, low self-esteem has been linked to depression [53] and narcissism [54].

In several past studies, researchers agreed that self-esteem is the best predictor of compulsive Internet use and individuals with lower levels of self-esteem have higher scores of compulsive Internet use. However, [55] suggest that no model has been suggested to reveal the impact of subjective well-being and self-esteem on problematic Internet use. In addition, Internet use could undermine or foster young people's well-being, depending upon how they used the Internet to communicate with each other [56]. Logically, Millennial Teens only upload beautiful and attractive pictures of them into their Facebook accounts. As a result, when other social networkers view these pictures, Millennial Teens will get praises and compliments which will boost their social self-esteem. This is because most of their Facebook friends are their best of friends. Thus, the importance of social self-esteem is hoped to be achieved due to PIU.

G. Behavioral

A behavioral effect is connected to a person's overt actions in relation to the attitude object [57] and [58]. These overt actions are referring to teens' high involvement in the online activities after they have accumulated certain knowledge

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(cognitive) and experience emotions (affective) from their frequent internet use.

1. Market Maven

In a six-year study of Internet usage by children conducted by [59] from 1996 to 2002, (79% from the United States) shows that 25% are heavy users, spending more than ten hours online each week and these heavy users comprise of kids from the age of 13 to 18. When kids spend many hours being online, they are considered as heavy media consumers which can lead them to become market maven.

The term ''maven'' describes an individual who knows a lot about an area or product category [60]. Meanwhile, [59] named market mavens on the Internet as eMavens. eMavens communicate about a product defect and benefits via Internet frequently. Meanwhile, mavens who are heavy media consumers are believed to have been sharing their expertise on certain products not only virtually but in the physical world too. Their capabilities of sharing and asking for knowledge from others manage to affect the companies' reputation positively and negatively.

The same application on the Millennial Teens, when they purchase gambling or gaming products online, they will spread the news among other users. Other pathological users will be triggered to try and experience the online gambling and gaming activities especially among the Millennial's male Teens. On the other hand, for female users, they purchase clothes and other celebrities' products online and share the product news with their peers without hesitation to swipe their parents' credit cards. This also shows that the influence of parents on kids' Internet use declines as the kids grow older.

H.Abbreviations and Acronyms

MSD	Media System Dependency
OCSE	Online Consumer Self-Efficacy
PIU	Pathological Internet Use
SNS	Social Networking Sites

I. Other Recommendations

I believe the children are our future. Teach them well and let them lead the way. As it is being sung by Whitney Houston, "The Greatest Love of All", it adequately means that one of the sources that can grant us the greatest, unconditional love of all is the children, the future generations. However, with the rapid adoption of Internet which comprises media such as Bebo, YouTube, Facebook, Second Life, and Twitter, these social media are changing the lifestyle of the future generations. With just one click, they can view, swipe and purchase all the products offered in the online marketplace. This is good news to all the virtual marketers, but not to all parents out there.

Therefore, the study of PIU should not just be based on identifying its outcomes on the teens mental and psychological disorder [15] but also in examining the determinants that lead to PIU. In here, the aim of the study is to identify the determinants of PIU and its effects/outcomes towards Millennial Teens consumerism value in terms of cognitive, affective and behavioral components respectively.

The modified framework displays a new variable; personality system. As prior to this, MSD Theory studies have never produced any recent studies on PIU nevertheless, contributing a new system to its interacting forces [29], [30], [31], [32], [33]. The personality of Internet users are of concern because the way introverts Millennial Teens approach this substance will differ from extraverts Millennial Teens. An extravert will be a sociable person who yearns for excitement, whereas an introvert may be regarded as serious, quiet, reserved, and somewhat unsociable, with a preference for isolated activities (e.g., reading) rather than social activities involving other people [61]. Extravert prefers chatting and blogging where he shares about his latest online purchases and influences his peers in getting one also. However, if he dislikes the products, he will spread bad words about them. Meanwhile, introvert teens rather lock themselves in the room and playing computer games all day, exploring all the current technologies in certain websites which, result in them in being technological savvy.

In the future, marketers should embed the personality and new demographic factors of the same targeted urban Klang Valley Millennial Teens in this study by adopting marketing intelligence system in targeting and segmenting them. This is because the PIU determinants and effects will vary as they grow older. The use of other different types of SNS should be adopted as a specific genre within different types of media is different. In hence, Millennial Teens motives of visiting these SNS might differ by then as they age.

Rather than just getting profit for the organizations marketers should anticipate these young excessive Internet users, to be their loyal customers as they grow together with your products and brand names. Besides, it is noted that it is less expensive to maintain a loyal customer than to recruit a new one. In a nutshell, with the adoption of a marketing intelligence system in the future studies should be of help to the world's e-commerce growth as studies on PIU have contributed enormously to the psychiatry industry alone.

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