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Modelling Digital Technology Addiction for Individual Over-Indebtedness

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Abstract:

Technology had become an essential part of our daily routine, which we cannot live without. It becomes a useful communications tools where people communicate with each other's in many ways via digital technology. However, the developments in the digital software had caused to the new types of behavioural addiction to arise, such as digital game addiction and Facebook addiction. Moreover, the overuse of the digital technology had a trigger to the situations of fear of missing out (FOMO), where the individual will be trying hard to be at par as his/her social norms. Although previous studies have stated that the over-use and dependency of digital technology effects on individual consumption, however, there is no study has considered the impact of digital technology towards over-indebtedness. With regards to this limitation, thus this study tries to formulate a conceptual model for digital technology addiction and individual over-indebtedness in filling a research gap in the related field.

Keywords: Digital technology; smartphone addiction; technology addiction; over-indebtedness; financial well-being

1. Introduction

It is fair to say that we are currently live in a credit-centric consumer society in times of rapid technological transition. The spread of digital technologies, especially the smartphone has produced new venues with lower entry barriers and fewer gatekeepers for both purchasing and credit management (Matas, 2015). The Western world has seen a significant increase in mobile technology use in the last decade. In 2016, 93% of the population owned a smartphone in the UK, and users spend more time accessing the Internet via a phone than through other devices, such as laptops and desktop computers. Whereas the Internet and Smartphone penetration rate in Malaysia for 2017 is 80.1% and 97.7% and the numbers are expected to increase further. These recent trends support mobiles, and the Internet has become closely interlinked to enable "on-the-go" access to a range of facilities, including web-browsing, communication, shopping, banking, and gaming (Kuss et al., 2018).

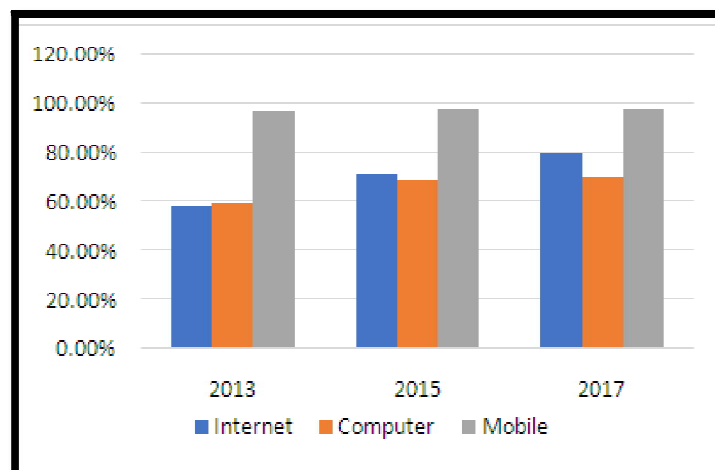


Figure 1: Key Digital Use by Individuals
Malaysia, 2013, 2015 and 2017

Source: Department of Statistics Malaysia

Technology has become an essential part of our daily routine, which we cannot live without. It becomes a useful communication tool where people communicate with each other in many ways via digital technology. Moreover, digital technology which is in the form of smart phones, web-based television and tablet PCs, is currently changing the world of advertising. More and more people do not only watch commercials on TV but also see advertisements (ads) on their smart phone or tablets. People can play games or watch interactive videos via their gadgets, and generally while browsing the ads will appear on their screens. These will trigger the sense of purchasing among digital technology users

and hence lead to spontaneous purchase among users. Besides, the big data collection from the digital technology provide information about the technology users, such as their interest and restore the details information of the users including their account for purchasing payment method. For example, the shopping applications (apps) like Shoppe, 11Street and Lazada granted a facility for buyers to restore their favourite payment tools, especially for credit card users. As the ads appear according to with the user's interest plus with the efficient and easy method for purchasing and paying, these will cause to the high spending among technology users and hence will be trapped with a situation of high debt. The longer the time spends by the users on their technology, the higher the chances of the individual to become a shopping addiction and hence to influence them to have the pro-debt attitudes.

The technologies develop the role of the smartphone, i.e. Mobile internet access has completely changed the game over the last five years, and societal norms around credit changes as well as the perception of money and credit (Nanninga, Ward, & Hoong, 2015). The social media such as Instagram and Facebook leading causes to materialistic among its users, by the purpose of being favourable by the followers, or trying hard to be 'centrality' or accepted among social networks. Furthermore, it is stated that a need for belongingness can make youth susceptible to the influences of a credit-driven culture (O'Loughlin and Szmigin, 2006; Kempson, 2002; Palan et al., 2011; Leclerc, 2012).

Moreover, it is said that the growth of digital technology that affects buying behaviour leads to the situation of impulsive buying. This impulsiveness also has a strong tendency and the relationship with the debt problem. One possibility is that individuals who act impulsively in their spending decisions use forms of consumer credit, which make them more vulnerable to incurring debt problems (Gathergood, 2012). A recent study revealed one of the more common reasons for payment default for people between 18 and 25 years in Swedish is for invoice purchases and that a large portion of these relates to e-commerce (Larsson, Svensson, & Carlsson, 2016). The study shows that e-commerce had led to individuals entering risky financial situations and even over-indebtedness. Besides, the study also found that the smartphone subscription as a problematic "first credit" for their clients. It is more common to have recurring payment problems in the group with more than one mobile subscription (10% of the sample) than those with none or just one.

Having a debt problem such as high debt and default payment are the indicators of over-indebtedness. Presently, there is no consensus in the literature on the definition of over-indebtedness and how to measure it (Fatoki, 2015; Schicks, 2014; D'Alessio & Iezzi, 2013; Liv, 2013; Marron, 2012; Betti, Dourmashkin, Rossi, & Yin, 2007). The growing knowledge of over-indebtedness mention four general criteria of over-indebtedness, which are: (i) making high repayments relative to income, (ii) being in arrears, (iii) making heavy use of credit and (iv) finding debt as a burden. In general, people are considered over-indebted if they have difficulty in meeting with their financial commitments related to loans or the payment of bills (Gathergood 2014). Over-indebtedness refers, then, to a situation where a person or household does not have enough money and facing with difficulty to pay debt instalments and interests after other necessary paid expenditures (Raijas, Lehtinen, & Leskinen, 2010).

The heavy use and dependency on digital technology (also referred to addiction) will influence to the adverse outcomes. Previous studies discussed on the consequences of the mobile phone addiction towards mental health, such as depression, addiction and anxiety (Elhai et al., 2017; Nalwa & Anand, 2003; Rosen, Whaling, Carrier, Cheever, & Rokkum, 2013). As such, from the best of researcher knowledge in the time of current publications, there is no studies had been conducted in investigating the effects on digital technology addiction towards over-indebtedness. With regards to this, therefore the objective of this study is to develop a conceptual framework for digital technology addiction and individual over-indebtedness.

2. Literature Review

2.1. Digital Technology and Technology Addiction

Digital technology is defined as "any technological device that functions through a binary computational code such as mobile phones, tablets, laptops and computers" (Moreira dos Anjos-Santos, El Kadri, Gamero, & Gimenez, 2017), and "any information used on a computer or disseminated on a computer is known as digital technology. Digital technology can enhance the level of creativity and distribution of information. Some examples of digital technology are computer programs and software; web pages and websites, including social media; data and databases" (Conway, Harris, Smith, Brackett, & Hayes, 2016).

Addiction is defined as impulse dependent on a habit of a specific activity or substance use though it has destructive effects on the physical, social, emotional, and mental health of the individual as well as his/her financial situation (Kim et al., 2016). As such, Billieux (2007) considering exaggerate mobile phone use also viewed as a behavioural addiction. Addiction is classified in two ways which are drug addiction and behavioural addiction (Nayak, 2018). According to Kesici & Tunç (2018), here are six criteria to consider behaviour as an addiction which are:

- Saliency: That a specific action becomes vital in terms of life.
- Mood modification: That this action affects a person's mood
- Tolerance: The increase in the amount of action to show the same effect on the person.
- Withdrawal: Unpleasant emotions or physical symptoms are seen when the action does not continue or stops immediately.
- Conflict: The conflict that a person experiences because of the dilemma between him/her and the people around him/her.
- Relapse: That a certain action tends to occur again after the avoidance or control lasting long years.

2.2. The Measurement of Digital Technology Addiction

In developing digital technology addiction construct, the researcher had to go thru and review previous studies on technology addictions such as the Internet addiction, Smartphone Addiction, Problematic Usage Mobile Phone (PUMP), Computer Addictions, Online Cognition Scale (OCS), and Facebook Addiction Scale. From it, the researcher had identified that most of the scales measurements have a standard definition; which defines and discuss on the “dependency, over-use on the technology usage”, and the withdrawal symptoms from the digital technology addicted. Table 1 among the scale measurements for digital technology addiction by previous studies.

Author	Construct	Dimensions/Elements
(Kesici & Tunç, 2018)	Digital Addiction Scale	<p>Overuse</p> <ul style="list-style-type: none"> • While eating my meal, I am occupied with mobile phone, tablet, or computer. • I continuously look at the digital devices (mobile phone or tablet) in a trip, picnic or social environments where I am with my friend. • I overuse the digital devices out of their purposes. • I find myself checking my digital devices upon dealing with a work. • I deal with the digital devices like tablet even if I do demand things. <p>Non-restraint</p> <ul style="list-style-type: none"> • I cannot control myself on the amount of time of using the digital devices. • I have unsuccessful attempts to reduce the time I spend with the digital devices. • I cannot reduce the time I spend with the digital devices. <p>Inhibiting the flow of life</p> <ul style="list-style-type: none"> • The digital devices prevent me from doing my responsibilities related to home and school. • I have missed many opportunities because of spending a lot of time with the digital devices. • I am unaware of what happens around me when I deal with the digital devices. • I feel that I become less creative because of using the digital devices. <p>Emotional state</p> <ul style="list-style-type: none"> • Assigning a job to me when I spend time with digital devices makes me annoyed. • The environments where I cannot use the digital devices bore me. • I feel very unhappy and angry when I do not use my digital devices for a long time. • I feel very happy I spend time with the digital devices. <p>Dependence</p> <ul style="list-style-type: none"> • That my digital devices are broken or get lost makes me anxious. • Even if I leave my house for a short time, I want to take the digital devices like phone/tablet with me. • I keep digital devices like smart phone or tablet around when I go to sleep.
(Elhai, Dvorak, Levine, & Hall, 2017; Kuss, Harkin, Kanjo, & Billieux, 2018; Merlo, Stone, & Bibbey, 2013)	Problematic Mobile Phone Usage (PUMP)	<p>Dependence</p> <ul style="list-style-type: none"> • I can easily live without my mobile phone * • I feel lost without my mobile phone • It is hard for me to turn my mobile phone off • It is easy for me to spend all day not using my mobile phone • I get irritated when I am forced to turn my mobile phone off • I don't attach a lot of importance to my mobile phone * • Is it hard for me not to use my mobile phone when I feel like it <p>Prohibited use</p> <ul style="list-style-type: none"> • I don't use my mobile phone when it is completely forbidden to use it * • I don't use my mobile phone in a library, cinema, or hospital * • I use my mobile phone where it is forbidden to do so • I try to avoid using my mobile phone where people need silence * <p>Danger</p> <ul style="list-style-type: none"> • I have found myself in risky situations because I have used my mobile phone whilst walking • I use my mobile phone whilst crossing the road • I use my mobile phone in situations that would qualify as dangerous • I use my mobile phone while driving • I try to avoid using my mobile phone when driving on the motorway* <p>*Reversed item</p>

Author	Construct	Dimensions/Elements
(Kim et al., 2016; Y. H. Lin et al., 2014; Nayak, 2018; Samaha & Hawi, 2016; Van Deursen, Bolle, Hegner, & Kommers, 2015)	Smartphone addiction scale	<ul style="list-style-type: none"> • Compulsive behaviour • Functional impairment • Withdrawal • Tolerance
(*Meral, 2018; Nalwa & Anand, 2003) (Davis, Flett, & Besser, 2002)	Internet addiction scale *internet addiction = digital technology addiction Problematic Internet Use	<p>Social comfort</p> <ul style="list-style-type: none"> • I am most comfortable online. • I feel safest when I am on the Internet. • You can get to know a person better on the Internet than in person • I often find it peaceful to be online. • I can be myself online. • I get more respect online than “in real life.” • People accept me for who I am online • Online relationships can be more fulfilling than offline ones. • I am at my best when I am online. • I wish my friends and family knew how people regard me online. • The Internet is more “real” than real life. • I say or do things on the Internet that I could never do offline. • When I am online, I can be carefree. <p>Loneliness/depression</p> <ul style="list-style-type: none"> • Few people love me other than those I know online. • I am less lonely when I am online. • I cannot see myself ever without the Internet for too long. • The Internet is an important part of my life. • I feel helpless when I don’t have access to the Internet • I am bothered by my inability to stop using the Internet so much. <p>Diminished impulse control</p> <ul style="list-style-type: none"> • I often keep thinking about something I experienced online well after • I have logged off. When I am on the Internet, I often feel a kind of “rush” or emotional high. • I use the Internet more than I ought to. • People complain that I use the Internet too much. • I never stay on longer than I had planned. • When I am not online, I often think about the Internet. • The offline world is less exciting than what you can do online. • I can’t stop thinking about the Internet. • Even though there are times when I would like to, I can’t cut down on my use of the Internet. My use of the Internet sometimes seems beyond my control. <p>Distraction</p> <ul style="list-style-type: none"> • When I am online I don’t think about my responsibilities. • When I have nothing better to do, I go online • I find that I go online more when I have something else, I am supposed to do. • When I am online, I don’t need to think about offline problems • I sometimes use the Internet to procrastinate. • I often use the Internet to avoid doing unpleasant things • Using the Internet is a way to forget about the things I must do but don’t really want to do.

Table 1: Digital Technology Measurement from Previous Studies

Source: Develop for the Current Study

2.3. Over-Indebtedness

Presently, there is no specific definition of over-indebtedness and how to measures it. Recent studies identify three possible measurements or model of consumer over-indebtedness. These are objective measures, subjective measures and administrative measures:

- Objective measure: It refers to a quantitative model that defines over-indebtedness to be an unsustainable level of debt regarding their debt ratio. The debt ratio varies from 30% to 50%. However, most researchers had used 50% debt ratio as a cutting point in determining consumer over-indebtedness (Marron, 2012; Veliziotis, 2010).
- Subjective measure: For this model, it defines the over-indebted borrower base on the self-report. The justification is, it is the borrower’s himself who knows whether he is in over-indebted on not. A borrower is in an over-indebted situation if he faces with financial difficulties, such as repayment problems, defaults on bills or loan repayments (Betti et al., 2007; Disney et al., 2008; Gathergood, 2012; Larsson et al., 2016; Lusardi & Tufano,

2015). Besides from self-reported, there is a recent definition of over-indebtedness introduced by (Gutierrez-Nieto et al., 2016) and Shicks (2014). The researchers define over-indebtedness specifically from the consumer's perspective, which is "borrower sacrifices." In this case, an over-indebted person is the one who has to make sacrifices in order to deal with financial difficulties. The sacrifices action like doing over-time work, psychological sacrifices (shameful), and deterioration in basic needs, such as reductions in food intake.

- Administrative measure: The measurement that records over-indebted who those cases of non-payments of debt that have been officially registered or declared before a court. Example; in the process of bankruptcy or being declared as bankruptcy and received a warning letter from financial institutions due to the default payment. However, this measurement of over-indebtedness is not widely used in the literate, as bankruptcy and received a warning letter from financial institutions are considers as a last resort of over-indebtedness (Fatoki, 2015; Raijas et al., 2010; Schicks, 2013b).

3. Conclusion

The technological and economic institutions offer opportunities for growing consumption and credit use and the emergence of credit problems. In general, the most prominently featured research fields in the analysis indicate that research on indebtedness in digital contexts focuses on a systemic perspective rather than a consumer or client perspective. The main concern from the previous studies is on how to develop systems and business strategies to protect business owners from losses incurred from insolvent consumers, rather than to research consumers who have become indebted because of over-consumption in a digital context, and the impact has on their lives (Carlsson, Larsson, Svensson, & Åström, 2017). Currently, the consequences of the effect in digital technology for consumption and indebtedness remain under-researched. Noticing that there is a need for a study on this field, therefore the had come out with a proposed model on digital technology addiction towards individual over-indebtedness.

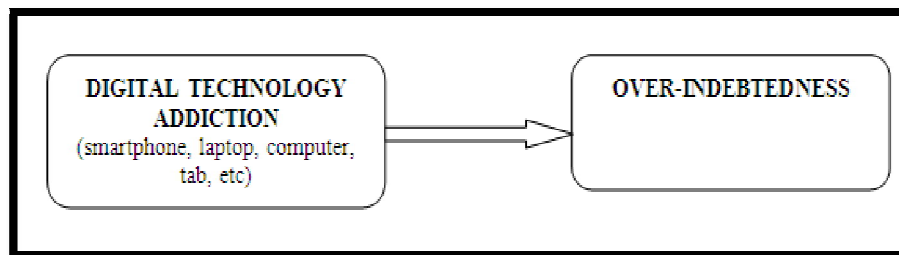


Figure 2: Proposed Model for Digital Technology Addiction and Over-Indebtedness
Source: Develop by the Researcher

As presented in Figure 2, the digital technology addiction refers to any technology tools and the device such as a smartphone, internet, laptop, computer and tab. Besides, the researcher also would like to emphasise that this model is not only limited to the over-indebtedness. Future research might also consider the effect of digital technology addictions towards individual financial well-being. With details discussions on digital technology addiction, the researcher hopes that this proposed model would be a guideline for the future researcher in exploring a relationship between digital technology and individual over-indebtedness, as well as other behavioural financial outcomes in the future.

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