

UNDERSTANDING NOMOPHOBIA AMONG DIGITAL NATIVES: CHARACTERISTICS AND CHALLENGES

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Received: 08.04.2020

Revised: 09.05.2020

Accepted: 05.06.2020

Abstract

Digital native generation is born during the digital era and know-how to use technology especially smartphone at an early age. Smartphones play a vital role in the increase of having nomophobia as this device offers many capabilities that it has become a daily essential. Digital natives and millennials generation have access to or owns at least one smartphone with access to the internet 'Nomophobia' is a growing concern as seen among digital natives and the millennial generation. The study examines the definitions, characteristics, as well as patterns of nomophobia among digital natives and millennials. The methods of the study were qualitative approach by interviewing respondents' mostly digital native and millennials generation. Then, a text mining analytics from respondents' conversation on the topics of nomophobia was extracted to find common patterns and correlations. The study revealed that nomophobia and digital natives become anxious when they do not have their smartphones with them. Digital native with nomophobia has been exposed to the smartphone and tend to rely on these technologies more than anything else.

Keywords: Smartphone, Nomophobia, Millennial generation, Digital Native, Smartphone Habits

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DOI: <http://dx.doi.org/10.31838/jcr.07.13.22>

INTRODUCTION

Smartphone is a device that has diverse functions which exists in the capability of a computer. It is a device that can be defined as a mini computer because of its unique size and its various functions like a PC or a computer device. It allows the user to use various applications, for example web browsing, emails, downloads, games and more (Carroll & Heiser, 2010; Razzaq et al., 2018). Smartphone users vary from all level of ages but majority of them are found to be young adults or youngsters (Ahad et al, 2017). Since smartphones are becoming more advance and complex, youngsters are a digital native where they are a step ahead in using these technologies than other groups of people.

Due to its attractiveness with a wide range of applications, Smartphone can influence the user's mind because once the phones are considered obsolete, people tend to get a new phone. It continuously upgrades in the form of style or an act because they change vigorously in the market (Goldman, 2011) and requiring simultaneous updates because more creative features are updated in regular basis. This activity can be considered as an addiction for frequent users because they could not waste a time to be outdated. Consequently they follow on track on what is trending and popular. Since people can consume more of the time with Smartphone, it is highly responsible for the user's health problem. Excessive usage of Smartphones may affect the user's health such as eye problem, joint and muscle pain, behavioral problem or even mental health disorder. Furthermore, Smartphone is an influential device in a hand of the youth throughout the day that it may affect habits or behaviors of the users (Dennison et al., 2013).

Nowadays, youths have access or owns at least one smartphone with access to the Internet. Smartphone are so attractive and advanced offering a lot of digital information, features and functionalities as well as entertainment. However, there is a

growing concern that a lot of youths would encounter a psychological challenge namely 'Nomophobia'. Nomophobia is usually anxious type of people, and have some sort of nervousness considering they feel they have to fill a void. They are always distressed and have a social anxiety and gets panics easily as they are always concern on smartphone's notification (Enock et.al, 2014). The person tends to check their phone very often during any activities in case they got texts from their friends or they got notification from other Apps such as Instagram or Twitter thus they cannot pay attention on the task or activities.

Youngsters especially those are digital native generation are more likely to experience nomophobia. Nomophobia is powerful behavior that a person could not go out for a little while without their smartphone as a part of their activities ((Anshari, Alas, & Sulaiman, 2019; Almunawar et.al. 2013). This study examines definition, characteristics and proposed solution for person who may suffer nomophobia. Thus, this research looks into nomophobia among youths' experiences with smartphone especially constant usage for online activities. This paper is organized as follows: Section 2 consists the literature review which is used to construct the main idea of this research. Section 3 discusses the approach taken to investigate the problem highlighted in this study. Section 4 describes the findings of digital natives' analytics. In Section 5, results of nomophobia analytic followed by discussion and recommendations at Section 6. Finally, Section 7 summarizes the research.

LITERATURE REVIEW

It is no doubt that people attach to their smartphone seeing these gadgets as reliable items in their lives. In fact, smartphone has become a necessity for people's lives providing many option to stay connected everywhere at any time. It is a smart mobile device with many features beyond making and receiving phone calls, text messages, voice mail and Internet access as well as

digital media access including pictures, music and videos (Grinols & Rajes, 2014). It is undisputable that the global trend towards smartphones has reached any countries either developed, developing and least developed countries. The number of smartphone users worldwide escalates as Apps are forecasted to rise from 10.7 billion in 2010 to 182.7 billion in 2015. The rapid growth in the number of connections and growth in the consumption of data services. While the rate of growth of consumption in this category is reported to be over 80 % at the global level (International Data Corporation, 2011).

Smartphones for youth and children would be able to provide them with a new form of learning, apart from the traditional textbook that they use in school (Jones, 2013). Allowing this device, they would be able to access various information through the phone's dictionary, encyclopedia and the education applications. Moreover, they would be able to have a fun learning process with educational gaming application, which can also be updated regularly with new information, rather than the fixed version of their textbook. In this section, we reveals some important studies on digital native generation in relation to smartphone and physiological impact of smartphone including nomophobia.

Digital Native

The years of the 2000s have been subject to a particularly strong influence of the child computer user discourse, symbolized "digital natives" or the "net generation" (Selwyn, 2009). The term digital native introduced from a series of articles written since 2001 by the US technologist Marc Prensky. Prensky stated the

generation of young people born since 1980 as "digital natives" due to what he perceived as an innate confidence in using new technologies such as the Internet, videogames, mobile telephony and all the other toys and tools of the digital age (Prensky, 2001). Today, these simplified understandings remain. Digital native is people that are born during the smart mobile technology era that conversant very well with technology. They know how stuff regarding technology and are born during technology era. They taught to use computers and most of the time using mobile technologies (Dutton & Blank, 2015). Prensky argued that technology was essential to these young people's existence – depicting young people as now being constantly "surrounded" and "immersed" by these new technologies in ways that older generations were not. Recently, Prensky has argued that this permanent state of technological immersion and dependence is encapsulated in the lifestyles of upcoming generations of "i-kids" (Prensky, 2008). While, non-digital native generation or 'digital immigrant' is technology is introduced to this generation when they are teenager. When they were still kids, they used to play around more and were not exposed with the use of technologies and the Internet. During they were little, technology was not advanced hence people were not exposed to smartphones and do not know how to work on it.

Bayne & Ross (2011) developed a useful place to contrast the native-immigrant opposition in considering the series of cluster around it. Drawing on the terminologies evident in the large popular literature, and the smaller academic literature on the theme could be extracted the following Table 1;

Table 1 Comparative Digital Native vs Immigrant (Source: Bayne & Ross, 2011)

Native	Immigrant
Student	Teacher
Fast	Slow
Young	Old
Future	Past or legacy
Multitasking	Logical or serial thinking
Image / visual	Text
Playful	Serious
Looking forward	Looking backward
Digital	Analog
Action	Knowledge
Constant connection	Isolation

Digital natives are assumed to have sophisticated technical digital skills and learning preferences for which traditional education is unprepared and unfit (Kirschner & De Bruyckere, 2017). One Digital natives generations are comfortable with multi-tasking (Prensky, 2001; Akçayır, Dündar, & Akçayır, 2016) as they are able to do more than one task at the same time (Calderwood, et.al., 2016; Teo, Kabakçı Yurdakul, & Ursavas, 2014; Polak et al., 2019). For instance, a multitasking individual may update status through social media, make conversation at their messenger communication and checking their email or sneaking friends' profile at Facebook.

In the context of undergraduate student, according to Smith (2012), today's undergraduate students are considered as digital natives. It is because they fulfil the characteristics of digital native and following eight dominant claims concerning digital natives painting Net generation students in higher education as: 1) Possessing new ways of knowing and being; 2) Driving a digital revolution transforming society; 3) Innately or inherently tech-savvy; 4) Multi-taskers, team-oriented, and collaborative; 5) Native speakers of the language of technologies; 6) Embracing gaming, interaction and simulation; 7) Demanding immediate gratification; and 8) Reflecting and responding to the knowledge economy (Smith, 2012). Similar argument stated that the

millennial learners who currently dominating universities' classrooms are purportedly digital natives whose repeated exposure to a host of new technologies has allegedly resulted in enhanced skills in several areas, including those related to technology and visual communication (Brumberger, 2011).

Digital natives are the future generations, normally they are a step ahead in using these technologies than the other group. No matter what gender they are as long as they are known as digital natives, they are the most smartphone's users (Low & Anshari, 2013). Smartphone is also an accessible device that can consume more of the user's time and also because it offers a wide range of available applications (Oulasvirta, Rattenbury, Ma, & Raita, 2012). Unfortunately, over-usage of Smartphones can actually affect to their health such as causing eye problems, joint and muscle pain, behavior challenges, or even mental health or disorder (Anshari, Alas, & Guan, 2015b), and one of the psychological issue due to smartphone addiction is known as nomophobia.

Nomophobia & Smartphone Addition

Smartphone is a device that has diverse functions which exists in the capability of a computer. Each of smartphone is likely accompanied by a mobile broadband data service package. It

allows the user to use various applications, for example web browsing, emails, downloads, games and more (Carroll & Heiser, 2010; Almunawar et al., 2015). It is a device that can be defined as a mini computer because of its unique size and its various functions like a PC or a computer device. There are many Smartphone users worldwide but most of them are found to be young adults or youngsters (Anshari et al., 2017). This is because Smartphone needs a better understanding before it can be used, as technologies are becoming more and more advance and complex.

According to Dennison, Morrison, Conway, & Yardley (2013) youth might change in behaviors because smartphone is in their hand throughout the day. This strongly shows how powerful a smartphone can become necessity as part of many youth's activities (Anshari, Alas, & Guan, 2016). It is an influential device that one could not go out for a little while without smartphone. Hence, it is highly reasonable and responsible for causing mental disorder or behavioral challenges or health problem. Furthermore, it can control the user's mind because once it becomes obsolete, people tend to get a new smartphone. According to Goldman (2011), smartphone continuously competing one another in the form of style, capacities, capabilities, and features as they change vigorously in the market. It needs an ultimate or simultaneous updates because more creative Apps are created within a year or less.

Regular update can affect an addiction for frequent users because they could not waste a time to be outdated or Apps provider will force user to update by disabling them to old version of Apps in order them to follow on track on what is trending and popular. The excessive usage of smartphone can be seen on a daily basis where people are busier than ever on their smartphone. Report on addiction-related studies have been increasing recently. A recent study surveyed almost 1,000 students in South Korea, by the age of 11 or 12, 72% of children own a smartphone and spend 5.4 hours a day on average, resulting 25% of children considered to be addicted to smartphones (Chen, 2015).

Students have become much dependent on smartphone by doing most of the jobs using a smartphone, where formerly it can be done without a smartphone. Camera, audio, video, notes, contact lists are all in the smartphone, making students unable to do their work without a smartphone (Woodcock et al., 2012). Even though smartphone can aids student to do assignment in soft copy, and does not waste papers which save the ecosystem, it has advanced and create social media such as Youtube which appears to show funny or inappropriate videos can derives and distracts one's concentration. Video or online games are expanded thus students often procrastinate and making them anti-social (Anshari et al., 2015; Samaha & Hawi, 2016; Ahad & Anshari, 2017). Smartphone that has notification can be a distraction to those who are weak to the temptation. The rapid advancement of smartphone and Apps can cause addiction and behavior challenges including nomophobia.

Regardless of the growing numbers of studies for smartphone's addition, the current research of nomophobia are still less and inadequate. Nomophobia can be simply described as a form of behavioral challenges special for smartphone's users. A simple definition of nomophobia is a feeling of anxiety that when smartphones are not in their possession or the fear of being out of smartphone contact (King et al., 2013). For instance, one may suffer the anxiety of not being able to be in contact with your phone or not having the phone with you and the other is having a phone but not being able to use it (Yildirim & Correia, 2015). It is fear of being away from a Smartphone or disconnecting from the mobile network. Some of those characteristics are anxiety of not being able to be in contact with phone or not having the phone with us or having a phone but not being able to use it (Bivin et al., 2013). Panic when smartphone is out of sight or when the phone

battery is about to die, or even when there are no receptions to make calls & delivering/receiving texts (Bragazzi et al., 2014).

In addition, nomophobia has multi-dimensional traits ranging from social, physiological, and physical symptoms that is summarized into very dependency upon smartphone. According to King, Valença, Silva, Baczynski, Carvalho, & Nardi (2013), nomophobia symptoms shows the existence of the previous mental disorder that is in need of examination, analyze and treated. According to Packham (2015), nomophobia has the Four stages of separation anxiety; cannot communicate, lost connectedness, cannot access information, and it is inconvenient to not have your phone on hand. Smartphone play a vital role in the increase of having nomophobia as this device offers many capabilities that it has become our daily essential. Increasing worldwide demand of smartphones have been an essential part of our lives and there is little doubt that almost everyone especially the youth owns them. Although there are favorable conditions of owning a smartphone. Yildirim and Correia (2015) argue due to users' daily involvement with smartphones, being separated from their devices would create distress and anxiety. Previous research indicated that 26% participants were Nomophobia and 64% were at risk of developing nomophobia from total of 205 participants of two schools (Menezes & Pangam, 2017).

Nomophobia is certainly a growing concern as seen among youth that nomophobia is a 21st century disorder that has relation to the growing expansion of technologies (King et al., 2014). Youngsters are more likely to experience nomophobia. It shows that more youths have become heavily reliant on smartphone for the purpose of convenience and sense of self-assurance. It is due to the addiction of the use of smartphones in daily life. Yildirim et al. (2016), conducted a survey regarding nomophobia in a Turkish college, found that about 42.6% of 537 students had nomophobia with their greatest fear being related to communication and information access. This strongly indicates that smartphone addiction poses a severe risk to many people since most of them are not practically aware of developing nomophobia.

METHODOLOGY

The study interviewed 230 digital natives and millennials generations. We asked them to define who digital native is, what their characteristics are, what nomophobia is, what nomophobia's characteristics are, and how to overcome nomophobia among youth. Then, we convert the answer into digital form and compiled each group of question into each cluster. The cluster composed of digital native, digital native characteristics, nomophobia, and nomophobia characteristics. Text mining tool were deployed to find the patterns of each cluster. The outcome of the pattern was terms' visualization in cloud words and correlation. We also analyzed how strong correlation between variables of research. In order to support text mining analytics, we conducted focus group discussions with the selected participants to verify the extracted pattern from text mining results.

Digital Native

Nowadays almost everyone would be preoccupied with their smartphone especially at the public places where people are not looking at their Smartphone (Perlow, 2012). Youths and children are the generation in majority have access or owns at least smartphone with access to the Internet. There is a growing concern that a lot of youths and children known as digital native would encounter the phobia given the fact that in this generation alone smartphone are advanced and offers a lot of digital information, entertainment and limitless communication. In this section, we revealed data analysis of digital natives from respondents' conversations.

Figure 1 is text mining visualization which is generated from respondents' conversation and their responds towards digital native and its characteristics. It shows most important keywords, characteristics and connectivity on the topic of digital native. While, Table 1 shows some strong positive correlations between components of digital native. Digital native generation, as they are the millennials who are born during the technology era. They grew up knowing a lot of technology around them. When there were at six (6) years old normally they started playing games on

mobile phone and they know about computers since they were a very young kid. As mentioned by respondent "I know how to use internet when I was in 3rd grade, but mainly I used it to play internet games before. So, I'd say I'm one of the digital native. We, the millennials are digital native by default because we are born in this technology era. Growing up, technology has improved and upgraded and we're here witnessing the progress of technology and using the technology as part of our lifestyles."

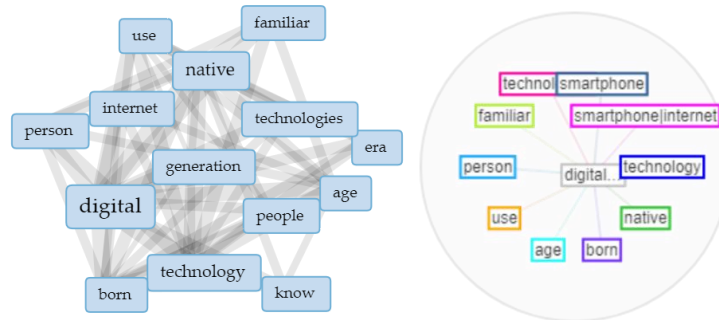


Figure1. Digital native characteristics extracted from text mining visualization (Source: Authors' compilation, 2018)

Figure 1 shows most commons keywords extracted from respondents conversation forming the patterns and characteristics of digital native. It shows that digital native is highly familiar with the technology and they know-how to use those digital technologies. In addition, they are people who are born and raised in the era of ICT and they are basically familiar

with the use of technologies and the Internet from an early age. Cloud words visualization indicates that they are normally always carry phones, wire chargers and even power banks to keep the phone well charged. If the phone battery is fully drained or no cellular connection, they will feel panic and fearful of not being connected with others online.

Table 2. Positive Correlations Digital Natives & Characteristics (Source: Authors' compilation, 2018)

Term 1	Term 2	Pearson's Coefficient	Correlation
Apps	Culture	0.9883174	
Tech	Toys	0.90632695	
Primary age	Tech	0.90632695	
Digital Era	Native	0.87401825	
Child	Games	0.8728716	
Kid	Online	0.80178374	
Smartphone	Young	0.79388416	
ICT	Age	0.7811885	
ICT	Usage	0.77272725	
Multitask	Programs	0.74535596	
Internet	Dependency	0.8249579	
Tech Comfortable	Digital native	0.80178374	
Playing	Tech	0.84270096	
Digital generation	Know-how tech	0.8615595	

While, Table 2 indicates strong positive correlations among variables of digital natives. Some of characteristics from digital native are conversant with new update (0.988), exposed to technology since early age (0.874), dependency (0.824), multitask (0.745), tech comfortable (0.80), extensive usage of

phone and games (0.87), and smart mobile device as a toys (0.906) or entertainment (0.842).

Conversant with New Update

One of strong characteristics is that they are able to cope easily without using manuals. Someone who is digital native are tech

savvy. They know how to make the best out of the features provided on computers and whatnot. Then they are able to understand the usage of each features quickly and able to use it. Since they are familiar using digital technologies at a young age, they tend to do their task faster than the digital immigrants. They most likely able to multitask. Some respondents agreed that youth and children nowadays as digital natives because most of them are exposed to the modern gadgets like iPad and smartphone. "I do consider myself as a digital native generation because I spend most of the times using modern technologies to do help me do my everyday work like studying, research, cooking, entertainment and so on."

The other respondent pointed out that they believe their interest in technology and application in life makes them fall under the digital native category as explained; "Yes, they are exposed to technology at a very early stage. They were given game consoles since they were a kid and grew up with gaming. At age 6, they accessed father's computer when he was not using and played with Microsoft Word, Excel, Paint and pre-installed games such as hearts, solitaire and pinball. Familiar with those applications in time, growing up they had ease of understanding and exploring computer applications on their own. With growth of Youtube in 2008, they were further exposed to online technology guides and trend."

However, some respondents are not considering themselves as digital native because they were not given a smartphone or computer when they were a kid not until they were in high school. Although technologies were already blooming at the time they were a young children, yet their environment especially their parents would limit them from being too dependent and getting used to the technologies. Therefore, they consider themselves as a digital immigrant, where one transfers from the certain era into another one. "I consider myself as a digital immigrant (people who grew up in one digital culture and moved into another) instead. It is argued that the people who grew up in the age of wired computers differ from those who grew up with mobile technology like laptop or mobile smartphone. I believe I belong in the first one. There is no denying that I've already been exposed to computers when I was younger but in comparison, I believe today's children is more likely to be digitally native or advanced than I was. This comes to play with them using trendy social platforms and services like Instagram or downloading game applications through mobile smartphone at such a young age. I on the other hand, was only familiar with these during my high school years." One characteristic of digital natives is that they feel comfortable with all the technologies around them and even get used to new technology faster compare to non-digital natives.

Expose to technologies since early age

The generation of people born during the rise of digital technologies and they are exposed to technologies since early age. They know how and accustomed to using computers and the internet from an early age to use some sorts of technologies. These person is very familiar with the technology such as computers because they are expose to it from the start.

Respondent stated "I consider myself as a digital native generation because back in my primary school, we used to have ICT/computer lessons where our teacher taught us how to use Microsoft Word, Excel, PowerPoint and also Paint. Even at home, I always use my father's computer and laptop to play games and actually do my school projects using Microsoft Word. They are brought up to this technology era where toddlers have an iPad so that they know how to work on the smartphones, know how to surf in the internet in an early age. Some of the characteristics are being able to multitask, can rapidly task-switching, intuitive learners where they are able to understand things without manuals.

Addiction of Phone and Social Media

When digital native wake up and he first thing that come to their mind are to check their smartphone for messages made by friends or to check social media networks is one of the common necessities. Respondent mentioned that "the characteristics of a digital native would be their constant usage of smartphone or spending too much time surfing the internet or social media." While, other respondent explained "I had a friend who borrowed an unfamiliar student's phone charger just to charge his phone for a while to post his update." The addiction makes digital natives more literate when it comes to digital technology as they grew up surrounded by it. Through this, they are able to adept better to change than most people who are not raised into the digital era. Though one could argue they develop the need to always surround themselves with digital technology.

Smartphone as Toy

As stated at Table 1 that there is strong correlation between technology and toys. For example, children as young as a baby are already introduced with their own technology, such as smartphone or tablets because some parents have the idea of containing their own children with the use of technology. This is very common nowadays, as toys are being replaced with games and videos from smartphone. Respondent mentioned "They grew up playing with these gadgets, it becomes a part of their norm to have one and is very familiar with it.

Nomophobia

In this section we displayed respondents' conversation on the topic of nomophobia based on the text mining analysis. Figure 2 was originated from respondents' answers and their conversation on the topic of nomophobia and its characteristics. The Figure shows most recent keywords and the patterns of nomophobia expressing activities, characteristics and connective. While, Table 2 was the extraction from the keywords. The analysis shows words pattern of characteristics of nomophobia (Figure 2). Definition derived from the analytic, nomophobia is a form behavioral addiction towards smartphone referring to the feeling of fear, anxiety or anxious caused by the inability to have access to smartphone, PCs or any device that provides virtual social communication. Nomophobia is defined as fear of not having smartphones caused by the addiction of the use of smartphones in daily life. It is the fear of the inability to contact people online and being out of cell phone contact.

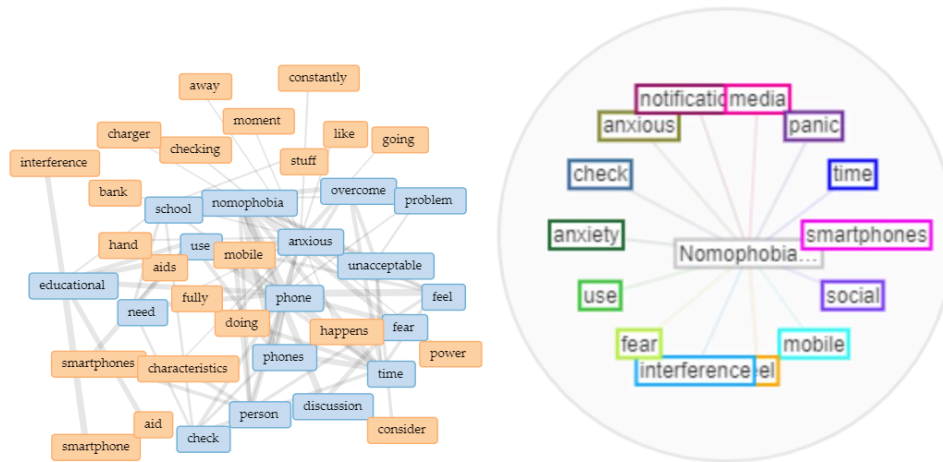


Figure 2. Nomophobia Characteristics from Text Mining Visualization (Source: Authors’ compilation, 2018)

Furthermore, Table 3 shows sentences’ extraction analytics for nomophobia. It shows that nomophobia has multi-dimensional characteristics ranging from social, physiological, and physical

symptoms that is summed up into extremely dependency upon smartphone. Below is the main characteristics of nomophobia based on the data extraction at Table 2.

Table 3. Characteristics of Nomophobia Extracted from Text Mining Analysis (Source: Authors’ compilation, 2018)

- Feel insecure without smartphone.
- Feel disconnected from the social media
- Finding it easier for completing simple tasks
- Being dependent on looking for information
- Social anxiety
- Keep looking onto their phones
- Bring smartphone everywhere
- Fear of disconnecting from the cellular network world
- Fear of the outside world without smartphone
- Always posting any small activities
- Unable to express feelings face to face but in social media
- Cannot communicate
- Antisocial/introvert with low confidence
- Suffer OCD (obsessive-compulsive disorder) on phones
- Difficult to make real friends in real life
- Bring charger or power bank to keep smartphone fully charged
- Mentally challenged when presenting in class verbally
- Have the tendency to turn on their smartphones
- Communicate people nearby via messaging
- Once without phone, psychological syndrome will trigger
- Thinking of their phone rather than the situation they are in
- Get stress overtime
- Financial issue due to the usage of their phones
- Sleep with their phones next to them
- Feeling lonely

Constant Checking

Nomophobia is the fear of not in contact with mobile phones. It is that they will constantly check their phone, even if there is no new notification. Both also is the fear of being disengaged from smartphone. It is an emerging disorder in modern world today, describing discomfort or anxiety due to the inaccessibility of mobile phones or other virtual communication devices in an individual who use them habitually (King et al, 2013). Always checks his/her phone for messages, connectivity or updates even when there are no notifications. They would instantly check their phones as they think their phone would vibrate but it did not. They would suffer a phenomenon called Phantom Vibration Syndrome. They feel it is hard to concentrate without checking phone and keep the phone silent rather than switching it off during lectures or formal events. Nomophobia arises due to the ability of smartphone creating instant rewards. People with

nomophobia might feel that treat like sensation or very anxious when they get a notification. For example, when they get a “ding!” from their smartphone, the reward is the text that they just got. Notification is like gifts or treats, and our smartphones are able to provide those mundane notifications and messages are our treats! Nomophobia arises due to the ability of it (the smart phone) to create instant rewards. For example, when you get a “ding” from phone, the reward is the text that you just got nomophobia arises due to the ability of it (the smart phone) to create instant rewards.

Feeling Insecure, Easily Panic, Fear, Anxious

People with nomophobia will attribute to feeling insecure without having smartphone, keep looking onto their phone and bring it everywhere. They will have the urge to reach into their pockets to search for their phone. They tend to check on their

phone because they feel anxious, distressed and panics for notifications as they check notification secretly in the event of formal meeting. Respondent explained " I would define nomophobia as the fear of not having my phone on hand at all times. Instead, I feel very anxious when that happens. I do still use my phone, but only due to convenience. Being able to search something up quickly, it fits in your pocket, I can use it to call my mom, etc.

Digital native and nomophobia share the same characteristics that is ignorance when people trying to communicate with them, and they easily got frustrated when the digital gadget is taken away. Either antisocial/introvert with low confidence and difficult to interact in real life; or highly confident and self-conscious that he/she will post status or photos all the time. They may suffer social anxiety which is being insecure when phone is out of sight that they cannot be able to fit in with people around them due to lack of self confidence in engaging a face to face conversation. Respondent highlighted "the person him/herself would feel insecure without their smartphones with them as they would find it difficult to communicate with their family and friends".

Anti-Social

No doubt smartphones have become a hands on aid tool because they can search direction, seek information, read articles, and watch educational videos. However, excessive usage of smartphone can make person becomes anti-social. One respondent stated that "“People labelled as digital native tend to go anti-social. However, they can do more things than digital immigrants such as multi-tasking and know how to find information and do more research.” As they depend their phones for social context and making friends there. It would be very difficult for them to make real friends in real life as he or she have used to making friends online. They always bring their phone everywhere and play with it even though no new text messages received especially at public places when that person want to avoid talking to strangers sitting next to them or when eating alone. Furthermore, according to a finding in the study conducted by Anuar Ali and Abdul Rauf (2017), there is a significant relationship that people that developed nomophobia are due to fear of inability to communicate, fear of loss of connectedness, fear of being alone and fear of loss convenience (Low & Anshari, 2013; Almunawar & Anshari, 2014). In the event of meeting or attending lecture, people with nomophobia never stop holding their smartphone and will only keep their smartphone in silent mode rather than switching it off. They need to at least have their phones on the desk where it is visible and within hands reach.

Addiction & Social media

Digital native and nomophobia embrace and loves smart mobile devices and they are usually social network savvy. Nomophobia person will feel disconnected from the social media and fear of the outside world without smartphone so they keep their phone switched on. "Whenever I'm bored but when it comes to my mobile device I tend to use it for its main purposes; calling and messaging. I only use my laptop to search for entertainment but I try not to spend too much time with technology." People with nomophobia are chasing expression that they are virtually social existence, self-expression, and popularities to engage in the digital era. The addiction continues to increase as users usually use it for self-expression. For example on social media. The need to be the first person to update on a certain event or achievement increases as the number of likes or retweets determine how important or how much you are accepted in society. As mentioned "by the time I was in Year 7, I got transitioned to the life of technology and spend more time on social media, catching up tech news, video editing and gaming. However I still maintain social interactions to this date." Either digital native or people with nomophobia also refers to an individual who develops their

lifestyle with the reliance on smart mobile devices including smartphone and the Internet. For instance, someone who was entirely handed with a technology as early as when they are 2 years old. For example, children as young as a baby are already introduced with their own technology, such as smartphone or tablets because some parents have the idea of containing their own children with the use of technology. This is very common nowadays, as toys are being replaced with games and videos from smartphone.

Dependency

In addition, they will be dependent on looking up information through smartphone hence they find it easy to complete simple tasks. Even, they are too dependent on their smartphone and when there is no access to information they feel something is lacking. Thus making them more addicted to smartphone. Moreover, for students, they will lose interest and have weak performance on their studies because they tends to take pictures of slide at the back seat in class rather than jotting down the notes. They will make technologies as excuses and will reach out their phone to charge it if the phone battery is low. Using a smartphone and spending considerable time on it, always carrying a charger with oneself, feeling anxious and nervous at the thought of losing handset or when the mobile phone cannot be used due to no network or battery. In addition, it influences the user's mind because once smartphone is considered obsolete, people tend to get a new smartphone. According to Goldman (2011) that smartphone continuously out dress one another in the form of style or an act because they changed vigorously in the market. It does need an ultimate or simultaneous updates because more creative Apps are created within a short period of time. It indicates an addiction for frequent users because they could not stand for outdated due to necessity for social pressure on what is trending and popular. Nomophobia can be linked to over dependency on mobile phone. Considering the increasing number of smartphones that serve advance functionalities, mobile phone could enhance our everyday life in many ways to an extent that one may not can live without it. As shared by respondent "when if their phones vibrates or blinking they will immediately checked on it by reading the notifications secretly, also when their phones has to be next to them and they can't take off their phone from their hands in which they always keep holding it"

Multitasking

Some respondents believe that digital native and nomophobia share the same characteristics that they do multitasking well and speak the language of online naturally. They have impeccable skill on multitasking and able to do more than one work at the same time and they are multimedia oriented where they are can multitasks by texting while sending an email with a TV show on in the background and browsing Instagram or twitter. As mentioned by respondents; "digital natives are usually able to do more than one task at a time are original or creative thinkers that like to experiment and are very flexible that they have their hands on a smartphone or a laptop, they have basic knowledge to use programs or Apps, able to multitask and do research online quickly, well adapted to social media and entertainment."

Health Issues

The final problem which may and could rise due to persistent usage of smartphones would be health problems. Although researchers have yet to find conclusive evidence that mobile devices are damaging our health, it does not mean that they are not a danger to our health either. There is also no harm in being cautious. Sometimes those who are addicted to their phones tend to forget the time especially when they find something they love to do on their phones: reading, playing games and even watching videos. These can cause people to lose sleep as they obsess over finishing what they have started and when one loses sleep, one

tends to become very cranky. That would lead to rude behaviors and perhaps it may also lead to other obvious reasons such as

losing focus and interest, misunderstandings and etcetera. In addition to that, it may also increase our stress levels.

Table 4. Positive Correlation between Variables (Source: Authors' compilation, 2018)

Item 1	Item 2	Pearson r Correlation
Phone	When bored	1.0
Phone	When Fun	1.0
Conveniently	Phone	1.0
Messengers	Phone	1.0
Generation	Medias	0.99146014
Nomophobic	Overtime	0.8849847
Nomophobic	School	0.8465397
Nomophobic	Habit	0.80403024
Nomophobic	Addiction	0.74535596
Away from smartphone	Socially	0.8154904
Addiction	Technology	0.74535596
Nomophobic	Applications	0.74535596
Network	Smartphone	0.9394187
Phone	Search	0.8479983
Educational	Smartphone	0.8476397
Not bring phone	Fear	0.82472247
Games	Online	0.7435358
Anxiety	Always watching phone	0.875
Feelings	Social Media	0.9018193
Accessing phone	Feeling	0.8451542
Feeling	Lonely	0.8451542

Table 4 indicates strong positive correlation between variables of nomophobia. For instance, there is strong positive correlation between personal feeling and smartphone interaction. Person with nomophobia, they will have social anxiety (0.875) and becoming introverted with low confidence level (0.845) hence disabling them to express their feeling face to face but prefer to express it in social media (0.9018). Furthermore, they will feel mentally challenged when they were asked to present verbally in class (0.824). They would develop and suffer obsessive-compulsive disorder (OCD) on phones (1.0). Moreover, they will become antisocial (0.824) so as a result they could not communicate and will face difficulty in making real friend as well as they will feel lonely (0.845), get stress overtime and can just communicate with people via messaging (0.99). These people will bring charger or power bank to keep the phone fully charged all the time (0.884) because without their phone, their psychological syndrome will get triggered. Not to mention, they will face financial issue due to the usage of their phone and they will sleep with their phone next to them (0.80).

How to overcome Nomophobia

People admitted to having the fear of losing signals, experiencing low phone battery powers and misplacing phones. These are just basic examples of someone who has Nomophobia (Anshari et al., 2019). They have been spending more time using their smartphone on social media, entertainment and others. Having to check their notifications too often without realizing. They probably would experience anxiety attacks if the phone was to be taken away from them. There are some similarities in terms of characteristics between nomophobia and digital native as discussed at previous section. Nomophobia which is the fear loss of phones is causing sleep deprive among the addicts since they stayed up late checking chats, status updates or to upgrade game level. It affects a large number of people and affects their mental and physical health. The younger children might develop nomophobia since they are exposed with technology and might own a mobile phone. In general, there are some useful activities that may eliminate nomophobia. Those are reducing phone usage, find new hobbies, and physical interactions or regular. In this section, we point out some keywords to reduce impact of nomophobia. Table 5 shows some key statements extracted from conversation and data analytics in order to eliminate nomophobia among youth.

Table 5. How to overcome nomophobia from text mining (Source: Authors' compilation, 2018)

- Limiting the use of smartphones on our daily life
- Phone-free zones
- engaging conversations with people around
- deleting useless applications
- new hobby-doing activities without bringing smartphone
- doing activities requiring high concentration without checking smartphne
- do something else instead of using smartphone
- take a break when using smartphones
- engaging in particular charitable
- visit the psychiatrist and take counseling
- switching off phones during obligations, activities, or bedtime
- mute it at all times if possible
- spending time with family instead of smartphone
- must limit and control children's time using phones
- having some therapy sessions

- writing and reading physically without using technology aids

Firstly, since nomophobia is a mental attribute, it can be reduced with a strong resolution to reduce phone usage or set specific boundaries from phones. For instance, just ignoring the phone and find a right time to check and reply the phones. When we have nomophobia, the best way to overcome it is by limiting the use of smartphones on our daily life, create phone-free zones. Slowly reduce phone usage time per day. Trying to limit their times checking their phone each day, setting a time on when to use your smartphones, or switch off your phones during obligations and activities or during bedtime. Taking a break in between when using smartphones. Let's per say, 10 minutes per use and 5 minutes per break. When we do activities that requires full concentration or during obligations and even bedtime we should eliminate our smartphones, switch it off. Secondly, try to engage conversations with people around, try to negotiate a real life conversations rather than having to be virtually active.

Thirdly, finding new hobbies that do not involve using phones by planning to set up a strong initiative do something else for a change. Do highly activities which requires high concentration that does not let you check phone. Fourthly, find other leisure outside your phone, for example doing outdoor activities or sports. Do some exercise or house activities during free time instead of playing their phones around. Trying to engage ourselves by conversing with the people around us and deleting useless applications. Meet up with friends and communicate directly, make a habit of not using smartphones to connect to others as you have someone to talk to right in-person. Engage in particular charitable activities or off-line meeting where you would be able to interact with other people. Instead of using smartphone, we should do something else, take a break and spend more time with family is much more important. However, finally if that particular person suffer chronic nomophobia, it is best for them to visit the psychiatrist and take counseling or rehab plus have some therapy sessions in order to get back on track of life. It is a must to limit and control children's time using phone to avoid developing nomophobia.

CONCLUSION

The research is an attempt to provide a picture of digital native and nomophobia among youth. Digital native is a term to describe a person who was born after the advancement of technology, where computers, smartphones, televisions, etc. are commonly used by the world's population. Both categories of nomophobia and digital native become anxious when they do not have their smartphones with them. Along with supporting experience of users, the study observes the impact of nomophobia towards personal habits and behaviors. Fear of losing signals, experiencing low phone battery powers and misplacing smartphone are just basic examples of someone who has nomophobia. They check updates on smartphone often and feel anxiety when the gadgets are far from our sight or not knowing where they put them. They feel anxious when they see their smartphone batteries run out so they carry power bank everywhere they go and panic when their smartphone is out of sight/ lost, or when the phone battery is about to die, or even when there are no receptions to make calls & delivering/receiving texts. Therefore, when a certain individual has been exposed into the technology advances, they tend to rely on these technologies more than anything else, especially in terms of keeping them preoccupied or become their distraction from everyone or everything.

REFERENCES

1. Ahad, A.D., Anshari, M., & Razzaq, A. (2017). Domestication of Smartphones among Adolescents in Brunei Darussalam, *Journal of Cyber Behavior, Psychology and Learning*, Vol.7 (4), p.26-39. DOI: 10.4018/IJCPL.2017100103
2. Ahad, A. D., & Anshari, M. (2017). Smartphone habits among youth: Uses and gratification theory. *International Journal of Cyber Behavior, Psychology and Learning (IJCPL)*, 7(1), 65-75.
3. Akçayır, M., Dündar, H., & Akçayır, G. (2016). What makes you a digital native? Is it enough to be born after 1980? *Computers in Human Behavior*, 60, 435-440.
4. Almunawar, M. N., & Anshari, M. (2014). Empowering customers in electronic health (e-health) through social customer relationship management. *International Journal of Electronic Customer Relationship Management*, 8 (1/2/3):87100. DOI:http://dx.doi.org/10.1504/IJECRM.2014.066887.
5. Almunawar, M.N., Anshari, M., Susanto, H., (2013). Crafting strategies for sustainability: how travel agents should react in facing a disintermediation. *Operational Research*. Vol. 13 (3). pp. 317-342. DOI 10.1007/s12351-012-0129-7, p. 27.
6. Anshari, M., Almunawar, M. N., Masri, M., & Hamdan, M. (2019). Digital marketplace and fintech to support agriculture sustainability. *Energy Procedia*, 156, 234-238.
7. Anshari, M., Alas, Y., & Sulaiman, E. (2019). Smartphone Addictions and Nomophobia among Youth. *Vulnerable Children & Youth Studies*, Taylor & Francis. <https://doi.org/10.1080/17450128.2019.1614709>.
8. Anshari, M., Alas, Y., & Guan, L. S. (2016). Developing online learning resources: Big data, social networks, and cloud computing to support pervasive knowledge. *Education and Information Technologies*, Springer 1-15. DOI: 10.1007/s10639-015-9407-3.
9. Anshari, M., et.al. (2017). Smartphones usage in the classrooms: Learning aid or interference? *Education and Information Technologies*. DOI: 10.1007/s10639-017-9572-7.
10. Anshari, M., Alas, Y., Yunus, N., Sabtu, N. I., & Hamid, M. H. (2015). Social customer relationship management and student empowerment in online learning systems. *International Journal of Electronic Customer Relationship Management*, 9(2-3), 104-121.
11. Bayne S., Ross J. (2011) 'Digital Native' and 'Digital Immigrant' Discourses. In: Land R., Bayne S. (eds) *Digital Difference. Educational Futures Rethinking Theory and Practice*, vol 50. SensePublishers
12. Bivin, J. B., Mathew, P., C Thulasi, P., & Philip, J. (2013). Nomophobia-Do We Really Need to Worry About?.
13. Bragazzi, N. L., & Del Puente, G. (2014). A proposal for including nomophobia in the new DSM-V. *Psychology research and behavior management*, 7, 155.
14. Brumberger, E. (2011). Visual Literacy and the Digital Native: An Examination of the MillennialLearner. *Journal of Visual Literacy*, 30(1), 19-47.
15. Calderwood, C., Green, J. D., Joy-Gaba, J. A., & Moloney, J. M. (2016). Forecasting errors in student media multitasking during homework completion. *Computers & Education*, 94, 37e48.
16. Carroll, A., & Heiser, G. (2010, June). An Analysis of Power Consumption in a Smartphone. In *USENIX annual technical conference (Vol. 14, pp. 21-21)*.

17. Chen, Heather. (2015, September 7). Asia's smartphone addiction. BBC News. Retrieved from <http://www.bbc.com/news/world-asia-33130567>
18. Dennison, L., Morrison, L., Conway, G., & Yardley, L. (2013). Opportunities and challenges for smartphone applications in supporting health behavior change: qualitative study. *Journal of medical Internet research*, 15(4).
19. Dutton, W., & Blank, G. (2015). Cultures on the Internet.
20. Enock, P. M., Hofmann, S. G., & McNally, R. J. (2014). Attention bias modification training via smartphone to reduce social anxiety: A randomized, controlled multi-session experiment. *Cognitive therapy and research*, 38(2), 200-216.
21. Goldman, D. (2011). Your new smartphone is already a dinosaur. *CNN Money*, February, 3.
22. Grinols, A. B., & Rajesh, R. (2014). Multitasking with smartphones in the college classroom. *Business and Professional Communication Quarterly*, 77(1), 89-95.
23. International Data Corporation, 2010. IDC forecasts worldwide mobile applications revenue to experience more than 60% compound annual growth through 2014 [Online]. Available from <http://www.idc.com/about/viewpressrelease.jsp?containerId=prUS22617910>
24. International Data Corporation (2011). Retrieved on: Mar 18 2015. Available from <http://www.businesswire.com/news/home/20110628005647/en/IDC-Forecasts-183-Billion-Annual-Mobile-App#VRoCtFUfrug>
25. Jones, R. (2013). 5 benefits of giving your kids a smartphone. Retrieved May 19, 2018 from <http://www.edupad.com/blog/2013/11/5-benefits-giving-kids-smartphone/>
26. King, A. L. S., Valença, A. M., Silva, A. C. O., Baczyński, T., Carvalho, M. R., & Nardi, A. E. (2013). Nomophobia: Dependency on virtual environments or social phobia?. *Computers in Human Behavior*, 29(1), 140-144.
27. King, A. L. S., Valença, A. M., Silva, A. C., Sancassiani, F., Machado, S., & Nardi, A. E. (2014). "Nomophobia": impact of cell phone use interfering with symptoms and emotions of individuals with panic disorder compared with a control group. *Clinical practice and epidemiology in mental health: CP & EMH*, 10, 28.
28. Kirschner, P. A., & De Bruyckere, P. (2017). The myths of the digital native and the multitasker. *Teaching and Teacher Education*, 67, 135-142.
29. Low, K. C. P., & Anshari, M. (2013). Incorporating social customer relationship management in negotiation. *International Journal of Electronic Customer Relationship Management*, 7 (3/4), 239-252.
30. Menezes, P. M., & Pangam, S. (2017). Prevalence, Awareness and Effects Of Nomophobia among Adolescents. *International Journal of Psychiatric Nursing*, 3(2), 16-18.
31. Packham, A. (2015). Nomophobia: The Four Stages Of Smartphone Separation Anxiety. Retrieved May 8, 2018 from http://www.huffingtonpost.co.uk/2015/05/14/nomophobia-a-smartphone-separation-anxiety_n_7282008.html
32. Perlow, L. A. (2012). *Sleeping with your smartphone: How to break the 24/7 habit and change the way you work*. Harvard Business Press.
33. Polak, P., Nelischer, C., Guo, H., & Robertson, D. C. (2019). "Intelligent" finance and treasury management: what we can expect. *AI & SOCIETY*, 1-12.
34. Prensky, M. (2001), "Digital natives, digital immigrants", *On the Horizon*, Vol. 9 No. 5, pp. 1-6.
35. Prensky, M. (2008), "Young minds, fast times", *Edutopia*, June, available at: <https://www.edutopia.org/ikid-digital-learner-technology-2008> (accessed 19 May 2018).
36. Razzaq, A., Samiha, Y.T., & Anshari, M. (2018). Smartphone Habits in Supporting Students Self-Efficacy at Higher Education, *International Journal of Emerging Technologies in Learning*, 13 (2), pp. 94-109.
37. Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, 57, 321-325.
38. Selwyn, N. (2009, July). The digital native—myth and reality. In *Aslib Proceedings* (Vol. 61, No. 4, pp. 364-379). Emerald Group Publishing Limited.
39. Smith, E. E. (2012). The Digital Native Debate in Higher Education: A Comparative Analysis of Recent Literature. *Canadian Journal of Learning and Technology*, 38(3), n3.
40. Teo, T., Kabakçı Yurdakul, I., & Ursavas, O. F. (2014). Exploring the digital natives among pre-service teachers in Turkey: a cross-cultural validation of the Digital Native Assessment Scale. *Interactive Learning Environments*, 1e14.
41. Woodcock, B., Middleton, A. & Nortcliffe, A. (2012). Considering the Smartphone Learner: An Investigation Into Student Interest in the Use of Personal Technology to Enhance Their Learning. *Student Engagement and Experience Journal*. 1(1): 1–15.
42. Yildirim, C., Sumuer, E., Adnan, M., & Yildirim, S. (2016). A growing fear: Prevalence of nomophobia among Turkish college students. *Information Development*, 32(5), 1322-1331.
43. Yildirim, C., & Correia, A. P. (2015). Exploring the dimensions of nomophobia: Development and validation of a self-reported questionnaire. *Computers in Human Behavior*, 49, 130-137.