

# NOMOPHOBIA AND ITS RELATIONSHIP TO LEARNING PROCESS AMONG MALAYSIAN UNDERGRADUATES IN HIGHER LEARNING INSTITUTION (Perkaitan Nomofobia Terhadap Proses Pembelajaran Dalam Kalangan Siswazah Di Institusi Pengajian Tinggi)

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## Abstract

Nomophobia (NMP) is not a common or a widely used term, but it does exist in the world of technology in this 21<sup>st</sup> century. The term was coined to show the fear or anxiety that mobile phone users have when being out of cellular phone contact. This term portrays negative connotation and it is always deemed as an alarming phenomenon which there is always a need to reduce NMP as it was seen detrimental to mental and physical health. The objectives of this paper are to look at the level of NMP and its relationship to learning process among Malaysians undergraduates. The study was conducted with 172 ESL undergraduates from higher learning education institutions. An adapted questionnaire that was designed and developed from a NMP questionnaire (NMP-Q) and a Mobile Learning Attitude Scale (MLAS) were used. The questionnaire investigates the severity of NMP and the frequency use of mobile phone for educational purposes among the undergraduates. The results showed NMP phenomenon is alarming, but it shows positive effects in learning process. We could change the negative connotation of NMP into positive vibes in educational context by channelling the fear and anxiety of undergraduates to a more motivating method in their learning process. Thus, mobile learning can be implemented in higher learning institutions with consideration on several aspects of NMP to achieve the bigger goals on undergraduate achievements without abandoned their mental and physical health.

**Keywords:** m-learning; industrial revolution 4.0; smartphones

## Abstrak

Nomofobia (NMP) merupakan istilah yang jarang digunakan namun wujud di dunia teknologi pada abad ke-21 ini. NMP adalah satu perasaan ketakutan atau kebimbangan yang dialami oleh pengguna telefon bimbit sekiranya tidak dapat mengakses telefon bimbit secara kerap. NMP menggambarkan konotasi negatif dan dianggap sebagai fenomena yang membimbangkan kerana berisiko memudaratkan kesihatan mental dan fizikal. Objektif kajian ini untuk melihat perkaitan NMP terhadap proses pembelajaran dalam kalangan siswazah di institusi pengajian tinggi. Kajian ini dijalankan terhadap 172 siswazah program pengajian ESL. Soal selidik diadaptasi dan dibangunkan daripada soal selidik nomofobia (NMP-Q) dan Skala Sikap Pembelajaran Mudah Alih (MLAS). Soal selidik bertujuan mengenalpasti kesan NMP dan kekerapan penggunaan telefon bimbit untuk tujuan pendidikan dalam kalangan siswazah. Hasil kajian membuktikan fenomena NMP membimbangkan namun terdapat kesan positif dalam proses pembelajaran. Keperluan untuk mengubah konotasi negatif NMP kepada perubahan positif dalam konteks pendidikan dengan menyalurkan ketakutan dan kebimbangan siswazah kepada kaedah yang lebih bermotivasi dalam proses pembelajaran. Oleh itu, pembelajaran mudah alih boleh dilaksanakan di institusi pengajian tinggi dengan pertimbangan terhadap beberapa aspek NMP untuk mencapai matlamat yang lebih besar terhadap pencapaian siswazah tanpa mengabaikan kesihatan mental dan fizikal mereka.

**Kata kunci:** Pembelajaran atas talian; pembelajaran mudah alih; revolusi industri 4.0; telefon pintar

## 1.0 INTRODUCTION

Nomophobia, a term used to define a phobia of being out of cellular phone contact. It is deemed as a symptom or syndrome of problematic digital media use in mental health, but the definition is not standardised. It is a common problem that we, the mobile phone users cannot function without our mobile phones, and with the rapid evolving of technology use nowadays, we cannot deny the fact that it is important to have mobile phones and internet access. People have started to be dependent on their mobile phones for games, entertainment, online transactions, text messaging and many more activities. It is one great creation that emerges within this new civilisation in terms of convenience, inexpensive, portable and it is equipped with the most convenient features that people can do with this one device. This is even true amongst teenagers, and we could see the same pattern in higher learning institutions too. Mobile phone addiction has thus become one of the biggest behavioural addictions among teenagers. Parents are trying very hard to curb the use of mobile phones at home, schools practice the policy of not allowing school going children to bring mobile phones, and psychiatrist, doctors, and counsellors have mentioned the demerits of using mobile phones by highlighting the severe health implication for so long that it actually scares the society for a moment, but nothing changes the fact that mobile phone, regardless of the demerits it portrays, it is also a device that is ubiquitous and provide numerous capabilities. This device could go beyond serving communication, information and entertainment purposes. In education nowadays, the use of technology is almost essential to complement the face-to-face classroom approach. The emergence of innovative technologies has inspired many higher learning institutions to incorporate technology into education to cater the learning needs of 21st century learners. This phenomenon has promoted changes in pedagogy; remodel the curricula and teaching methodologies among many educators which is also aligned with Education 4.0 (Education with the use of Technology).

In order to reach the digital generation, interactive learning must be incorporated; hence the many education platforms were implemented and introduced in higher learning institutions such as Learning Management Systems (LMS), and social Learning Platforms in the recent years. However, due to the dependency of mobile phones, mobile learning (M-Learning) must be implemented as this group of students seriously do use their mobile phones as part of their learning process. Parents, teachers, educators and even students themselves should be aware of this phenomenon and to use this phobia in the process of teaching and learning to the overcome the demerits of mobile phone. Thus, this paper investigates the demerits on the dependency of mobile phones by relating the students' NMP severity to their learning process. The purpose of this study is to investigate the level of NMP among undergraduates and its relationship with mobile learning. More specifically, the present study addressed the following research questions:

- a) What is the relationship between students' NMP level and mobile phone use?
- b) Is there any relationship between NMP and educational use of mobile phone?

The results from this study is also to show the relationship of NMP to the use of mobile phones amongst undergraduates hence higher learning education institutions could acknowledge and incorporate M-Learning as one of the many platforms used for students and educators in the process of teaching and learning.

## 2.0 LITERATURE REVIEW

### 2.1 Various definitions of Nomophobia

Communication and technology have evolved rampantly, and more people nowadays are getting highly dependent on technology to communicate and to get connected with each other mainly using the mobile phones. Due to the high dependency on the usage of the mobile phones, many of us these days are rarely seen without the mobile phones in our hands. In some instances, some of us will be uneasy or even panicked if we forget to bring along our mobile phones with us in case if it is needed during emergency. Because of the situation above, the term NMP existed, and this is viewed as the 21<sup>st</sup> century disorder as a result of technologies.

There are various definitions given on the term NMP. In 2008, the term NMP is defined as fear of being out of mobile phone contact, (Mail Online) based on a survey done by the UK Post Office. The study suggests that 58% people out of 2100 respondents suffer from NMP and they do indicate the feeling of

anxiety if they are unable to use their mobile phones. Meanwhile, King, Valenca and Nardi, (2010) defines NMP as “discomfort or anxiety when out of mobile phone or computer contact. It is the fear of becoming technologically incommunicable, distant from the mobile phone or not connected to the web” (p.52). Here, we can see the definition of NMP has been broadened from just the mobile phones to the use of computers too. In 2013, King, Valenca, Silva, Baczynski, Carvalho and Nardi, once again redefined the term NMP. They included “other virtual communications” in the definition of NMP where they have broadened the use of mobile phones and computers to tablets and smartphones where these devices have numerous advance capabilities like the internet access, applications or sensors. Due to these capabilities of instant and constant access to information, people have become more dependent on their gadgets more than ever before (Park, Kim, Shon & Shim, 2013). Thus, NMP is regarded as “fear of not being able to use a smartphone or mobile phone and/or the services it offers”, (Yildirim and Correia, 2015). This fear includes not being able to communicate, losing connectedness that the devices allow, not being able to access information and giving up the convenience the devices provide.

## 2.2 Studies on Nomophobia

Some research studies have been done on NMP around the world. Monika et al. (2017) conducted a NMP research on dental students of D. J. College of Dental Sciences and Research to assess the students’ pattern of usage of mobile phones and its effects on their academic performance. 554 dental students participated in this study and a self-administered questionnaire were used in the data collection. The results show, 39.5% students agreed that they scored low marks in professional exam if they spend more time on the phone while 24.7% students frequently checked their phone during classes or while doing clinical work. Meanwhile, 24.12% students were found to be nomophobic and 40.97% were at the risk of becoming nomophobes. Therefore, this indicate that these dental students have been addicted to mobile phones and later affected their studies in a negative manner.

Bivin, Mathew, Thulasi and Philip, (2013) claim that behavioural addiction to mobile phone is evident in their study and classified as symptoms of psychological as well as physical dependency. 220 nursing, 153 dental sciences, 141 Ayurveda and 22 physiotherapy students took part in this study. Results show that most of these students are dependent on their mobile phones and 64% of these respondents some of them are at the verge of being severely nomophobics. From this study, it is suggestive that NMP can be considered as the emerging problem in this millennium.

In another study, Pravita, Suwarna and Mahadeva, (2015) tried to assess the prevalence of NMP and mobile phone dependence among the students of a medical college. They used a pre-designed and a pre-tested questionnaire and later analysed the data using SPSS 17.0. The result shows 39.9% of the 200 MJV Medical College respondents were nomophobic and another 27% were at the risk of developing NMP. 23% of them felt they lose concentration and become stressed when they do not have the mobile phone with them. However, though most of the respondents from this study to be reported as having the nomophobic characteristics, 77% of them responded that the mobile phone is a necessary tool to help them academically. Mohamad, Hasan, Dariush and Behnam (2013) also concur that 87% of participant of their studies claims that mobile phone is a necessary instrument for students while 54% expressed that mobile phone does not have an adverse effect on their academic achievement and studies. Thus, this can suggest that being nomophobic does have an advantage in education despite all the negative connotations that the term NMP has to offer. Therefore, banning mobile phones is not an option since we cannot escape the force of technological advancement (Bhattacharya, Bashar, Srivastava & Singh, 2019)

In more recent studies, Olivencia-Carrion, Ferri-Garcia, Rueda, Jimenez-Torres and Lopez-Torrecillas (2018), claim that there is a relationship between NMP and personality. In the study conducted among the 968 respondents from the city of Granada Spain, they concluded that the development of NMP can be prevented and intervention techniques should target personality traits so that this particular addiction can be put to its advantage. On the other hand, though the belief that NMP addiction can be controlled, Aguilera-Manrique, Marquez-Hernandez, Alcaraz-Cordoba, Granados-Gamez, Gutierrez-Puertas and Gutierrez-Puertas (2018) believe that it is necessary to introduce regulations on the use of smartphone especially in the educational setting. This is based on a study done on 304 nursing students from the University of Almeria Spain whereby the result shows that students who showed higher level of NMP agreed that the development of restriction policies in the clinical setting is necessary.

To further understand the impact of NMP in students’ lives, Darvishi, Noori, Mazer, Sheikholeslami and Karimi (2019), concluded that the prevalence of NMP is higher in lower ages, short-duration mobile phone users, as well as males and people with higher levels of education. This descriptive cross-sectional study was conducted on 100 students studying in different majors of medical sciences in

Islamic Azad University in Tehran Iran to investigate NMP among them. Therefore, the patterns of NMP occurrence among cell phone users can help to prevent harmful effects among the users of technology.

### 3.0 METHODS

The study was conducted with 172 ESL students from higher learning education institutions. All students from the institutions owned a mobile phone. In this study, we adapted a questionnaire that was designed and developed from a NMP questionnaire (NMP-Q) and by using a Mobile Learning Attitude Scale (MLAS). Thus, a 20-item questionnaire with 5-point Likert-type scale responses (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree) that investigates the severity of NMP and the frequency use of mobile phone for educational purposes was developed and posted in a google form link to be distributed among the undergraduates. The questionnaire consisted of 5 demographic items and 2 major sections. The 20-items questionnaire was then analysed in SPSS and because SPSS makes the analysis almost fool proof, it has become most important to be able to interpret results correctly and communicate them to others. In addition, frequency of use of language learning strategies related to whether students are in an ESL or EFL setting which is also deemed important in this study to show significant relationship between educational purposes, and NMP severity that was found in the frequency of strategy use. It is also indicated that the averages of 3.5-5.0 were usually considered high strategy use; 2.5-3.4 were designated medium strategy use; and 1.0-2.4 were regarded as low strategy use.

### 4.0 RESULT AND DISCUSSION

Mobile learning is a relatively new phenomenon with its theoretical basis still under development as there were many other platforms that could be used in the process of learning. However, researchers have begun to analyse more specific characteristics of M-learning, including how it can support learning opportunities, the types of learning and learning activities that can be supported, and the various contexts in which M-learning can take place. This study has also provided a summary on the positive relationships between the severities of NMP amongst undergraduates in higher learning institutions to their learning process that has taken place as stated in the first research question.

Table 1: Nomophobia Severity Level

	Mean	Std. Deviation
I would be annoyed if I could not look information up on my smartphone when I wanted to do so.	3.8721	.86243
I would be annoyed if I could not use my smartphone and/or its capabilities when I wanted to do so.	3.7849	.93983
If I did not have a data signal or could not connect to Wi-Fi, then I would constantly check to see if I had a signal or could find a Wi-Fi network.	3.5988	1.02404
I would feel uncomfortable without constant access to information through my smartphone.	3.5349	.89440
Running out of battery in my smartphone would scare me.	3.4419	1.20044
If I were to run out of credits or hit my monthly data limit, I would panic.	3.3605	1.12300
If I could not check my smartphone for a while, I would feel a desire to check it.	3.2791	1.04463
I would feel nervous because I would not be able to receive text messages and calls.	2.9186	1.15181

I would be uncomfortable because I could not stay up-to-date with social media and online networks.	2.9070	1.10953
I would be nervous because I would be disconnected from my online identity.	2.8314	1.18002

Relationship between students' nomophobia level and mobile phone use.

Table 1 presents the results corresponding to the first research question: What is the relationship between students' NMP level and mobile phone use? Specifically, this paper has highlighted the 3-NMP severity level amongst the undergraduates.

First, students have reported that they will be annoyed if they could not look information up on their smartphones when they wanted (mean score = 3.87), they will also be annoyed if they were unable to use their smartphones to its capabilities (mean score = 3.78), and if there were no data signal or could not connect to Wi-Fi, then, they would constantly check for signals or find the network (mean score = 3.59). These were the 3-severity level and were rated as the highest mean (mean > 3.5) shown in table 1. Hence, this has indicated that students' NMP severity has shifted its focus to the process of retrieving information and on digital literacy. The result of this study shows that digital literacy does not replace traditional forms of literacy, instead building upon the skills that form the foundation of traditional forms of literacy, in this case towards mobile devices. It is a continual learning process because of constant new apps and updates, whereby students need to be able to practice searching, shifting, evaluating, applying and producing information critically. The more severe the NMP level is, the more the students emphasised the importance of life-long learning in this study.

Secondly, the result of this study also shows that being uncomfortable could not stay up to date with social media and online networks (mean score= 2.90), and disconnected from online identity (mean score= 2.83) are the lowest mean, (mean < 3.0). These do not correspond to the notions that students were into social media and online networks as have been generalised and negatively perceived by many parties over the years. This present study shows that students were aware of the more important use of mobile devices. The dimensions of NMP such as feelings of losing instant communication with people and not being allowed to use the services that allow for instant communication, as well as being disconnected from one's online identity have been substituted with a more focussed objective in the process of learning in the higher learning education institutions. Participants described how this connectivity is not indispensable part of their lives now as students.

Table 2: Educational Purposes

	Mean	Std. Deviation
I use smartphone in my process of learning because it is a more flexible method of learning as it can be done anytime, anywhere.	4.1628	.71509
I use smartphone in my process of learning to look up something not understood during class effectively.	4.1395	.78974
I use smartphone because it is a more convenient method for research purposes.	4.1163	.80086
I use smartphone in my process of learning because it is a quicker method of getting feed-back in learning.	4.1047	.75748
I use smartphone in my process of learning to read articles or assignments given by lecturers.	4.0349	.87121
I use smartphone to spread knowledge by having discussion with a larger number of students.	3.9477	.86020
I use smartphone to understand learning material in between lessons.	3.9477	.81121

I use smartphone in my process of learning because it helps to Improve communication between student and lecturer.	3.9070	.88030
Mobile phone brand plays an important role in motivating the learning process.	3.4593	1.15651
I use smartphone in my process of learning for taking notes during lecture.	3.4360	1.12986

Relationship between nomophobia and educational use of mobile phone

Table 2 presents the results corresponding to the second research question: Is there any relationship between NMP and educational use of mobile phone? This study looks at M-learning that serves new paradigm that could very well enhance the flexibility of the educational process in the higher learning education institutions from a pedagogical perspective. Table 2 shows that the primary advantage of M-Learning from the students' perspective is to provide truly anytime, anyplace learning (mean score > 4.0). It corresponds to the students that they are no longer constrained by static resources. In addition to being able to access resources from anywhere with a mobile device, this ease of device offers other advantages too such as learning to look up something not understood during class effectively, a quicker method of getting feed-back in learning, a more convenient method for research purposes, and learning to read articles or assignments given by lecturers. Students can gather and process information outside the classroom to learn in a real-world context. It also reaches the underserved children whereby the low cost of a mobile device makes it accessible to low-income families and can help advance digital equity. This is proven in the demographic question that students rated a few affordable brands of mobile devices to be used in the m-Learning environment. Besides that, the mean scores also showed that m-Learning could improve 21st-century social interactions. Nevertheless, mobile technologies can promote and foster communication and collaboration; all the important skills of the 21st century (mean score = 3.9). M-learning fits with learning environments in which mobile devices can fit easily into many learning environments and eliminate the barriers associated with large devices that could also mean more cost involved.

This present study also shows that the mean score for educational purposes (mean score of > 3.5) for 5 items and (mean score > 4.0) for 5 items were relatively higher than the NMP severity level (mean score > 3.0) for 3 items, (mean score > 3.5) for 4 items, and (mean score < 3.0) for 3 items are the current situation that students were facing with nowadays with mobile device. The students having NMP score of > 3.5 mean score were considered as Nomophobics and most students fell into this category in this study. However, these nomophobics do use their mobile devices for educational purposes and it is possible for the demerits of mobile devices be shifted to positivity in the process of learning and integrating m-Learning to further ensure that it is certainly possible with the learning management system from a different pedagogical perspective in higher learning education institutions. Given that m-learning is a discipline alternative education platform, there are certain advantages provided in a m-Learning environment that are not present in other kinds of e-Learning. This paradigm shift could also be a possibility to reduce stress and pressure of parents, teachers, counsellors, and many more on the demerits of mobile devices among students.

## 5.0 CONCLUSION

In conclusion, the study shows that being nomophobics is indeed a plus factor in learning setting especially in the M-learning environment. Although many views mobile phone had many adverse effects, we cannot deny now, with the advancement of technology, something that we always viewed as negative formerly be reformed. Retrieving information online and being assessable to the net constantly is very crucial thus digital literacy is a significant factor in order not to left out in the 21<sup>st</sup> century. This is where we can manipulate the situation and turn it into an effective manner. This study indicates that the more nomophobic the students are, the more the students stressed the importance of life-long learning because connectivity cannot be dispensable. This study also concurs with Mohamad, Hasan, Dariush and Behnam (2013) findings where they state that mobile phone is a necessary instrument when it comes to study and academic achievement. This paradigm shift must be acknowledged thus making us aware that instead of fighting with

technology, we must learn to embrace it so that it can be governed to our advantage especially in the students' learning process.

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