

Impact of Smartphone: A Review on Positive and Negative Effects on Students

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Abstract

The use of smartphone among university students in the 21st century is seen as an important part of their life because of its advanced features. Students use their smartphones to accomplish their various daily tasks. Reviews from various studies revealed that students utilize smartphones for various objectives. Most of the students utilize smartphones for entertainment, social and education purposes. This study aims to review relevant literature on smartphone usage pattern among students and identify the positive and negative effect of smartphone on students by focusing on education, psychology and social aspect. Therefore, the review of this study is important in providing the outcome of smartphone use either it is positively or negatively effecting students life. This information is useful for researchers to conduct further studies in this field.

Keywords: smartphone, university students

1. Introduction

The fast growth of technology has developed electronic device such as smartphone that the function do not limited only for messaging but this device allow long distance communication. Smartphone can be called as minicomputer as the features and functions provided are like computer in its mini form and its handy (Rambitan, 2015).

The smartphone era began in 1993 with the introduction of Simon smartphone from IBM (Sarwar & Soomro, 2013). Smartphone revolution era began with introduction of blackberry smartphone in mass communication market equipped with many features such as web browsing, camera, email and internet. Apple entered the market in 2007 and became a major breakthrough in the market as the company introduce its first smartphone. By the end of 2007, android operating system by Google was revealed to public in aim to approach smartphone consumer with advanced technology.

There are differences between the previous version and current version of smartphone as the earlier version was more highly utilized as a tool in companies and was too expensive to be introduced to public users. As the technology progress during that era was slow and unaffordable by all, therefore the mobile phone users were limited. Essentially, mobile phone were produced in afford to simplify adult's job.

However, as time passes, youth became fascinated with this device. Smartphone offers many functions but youth are more attracted in chatting and searching for new mates through the medium of social media and even like to exchange pictures which seem to be unrelated to their learning. Smartphone seems to be the first thing users look for in the morning and the last things they look at before they sleep (Lee et al., 2014).

Smartphone is a mobile phone that has the ability of a computer. This device provides user with advance communication and computing ability than the traditional mobile phone which equipped with internet access, cameras with high quality, and management tools (Boulos et al., 2011). Latest smartphones are viewed as handheld computers rather than a normal phone because of its powerful computing ability and large memory. The capability of running feature-rich application (apps) on smartphones made smartphone a more powerful device replacing many devices such as alarms clocks, calculators, laptops, GPS navigators and digital cameras (Miller 2012).

Based on the survey from Malaysian Communications and Multimedia Commission (MCMC), it shows that the most popular medium for users to access internet is by smartphone (89.4%) and the country being a

mobile-oriented society. Based on 2017 report, there are 30.6 million mobile broadband subscriptions compare to 2.5 million fixed broadband subscriptions.

Moreover, survey by Malaysian Communication and Multimedia Commission in 2014 showed that 44.8 percent of smartphone users stated that smartphone is very essential in their daily life and 60.9 percent of users' age range between 20 and 39 are seen most obsessed with their smartphones, while 63.3 percent of users' accessed internet via their smartphones. Thus, it shows that Malaysian society has considered smartphones as an important device to be utilized in their daily life (Manvin & Narina, 2016).

Smartphone turns out to be one of the technologies that spread the fastest and been adopted widely by the world (Degusta, 2012). The way a person access information has changed with the introduction of smartphone. Individuals that own a smartphone is utilizing it beyond the mere function of calling and texting; by utilizing it for listening online music, online shopping and banking, watching movies and sending pictures (Anderson, 2016).

2. Literature Review

Smartphone has made the young generation to be so occupied with its technology that it became a trademark of the young generation (Skierkowski & Wood, 2011). This situation can be observe clearly as the technology savvy generation are so dependable on the advance touchscreen technology where just by a touch the application on smartphone can be used at any moment with accessibility of internet all a day long.

Furthermore, smartphone had almost changed the style of interaction between human being with this advance technology. The global use of smartphone affect the people and societies in various forms as it is used in various context such as for learning, working, and communication. Smartphone has made life more convenient with multiple features that can help users to manage most of their daily life work just by a click. It enables users to communicate faster and easier and obtain variety information through online resources.

2.1 Impact of Smartphone on Education

Teaching and learning in higher education over the past few decades has incorporated information and communication technology (ICT) as it is seen as a crucial component to be adapted in the development of social environment (Rung et al., 2014). The most popular trend in term of ICT use can been seen by the growth of dependency on mobile-connected devices as it is not limited for daily tasks but also been utilized in educational environments (Koszalka & Ntloedibe-Kuswani, 2010).

Educational activities that incorporate smartphone use are accessing of course content, inspiring sharing and discussion session between teachers and students and retrieving information regarding students' performances (Cochrane, 2010). Therefore, smartphone use may lead to important influence in enhancing students' performance as this device might boost teaching and learning experience.

Woodcock et al. (2012) stated that various area of students' lives would change by increasing smartphone use as students begin to utilize this device to increase their learning knowledge. Smartphones use in learning context can further lead students to be aware of the benefits they might encounter such as are able to learn anything at anywhere and anytime as well as encourage students to involve in learning activities. This shows that technology able to open and increase student's prospect especially in their academic.

Froese et al. (2012) conducted a self-report survey to investigate students' mobile phone activity in classes and the potential effect of the activities on students learning performance. The result indicates that the use of mobile phone distracts students learning process and students believe that their classroom learning is disrupted during texting.

Another study conducted by Tindell and Bohlander (2012) to understand the use and misuse of smartphone in college lecture setting. The finding shows that students are not paying attention to their class lecturer as they are spending too much time on texting. Study conducted by Elder (2013) shows that students who used mobile phone in class score lower than students who did not use mobile phone and they even not able to recall much information from the lecture.

Alfawareh and Jusoh (2014) study revealed that students do not fully utilize smartphones for learning motive but utilize it to make calls, taking pictures and browsing internet. Furthermore, Hanson et al. (2011) stated that students prefer to use instant messaging, email and web-surfing in library rather than looking into library online resources.

Moreover, students have difficulty in balancing their study life with their need for social support although they want to make their learning as a priority. Students seem to be motivated on updating their status on Facebook

rather than downloading their class assignment.

Smartphone has impacted students life in various areas especially education, Smartphone use for education purposes introduce students to world of knowledge as students are able to obtain various information by a click. Smartphone equipped with internet enabled feature provide students the ability to be connected always and is easier for them to obtain academic related materials online anytime.

Sarwar and Soomro (2013) stated the positive impact of smartphones in education context, it enables society to access various learning resources and provide opportunities for individuals to continue their education by distance learning.

However, utilizing the smartphone for a long period or continuously might affect a person health; the person might experience headache and frequent messages and calls lead to interruption on students concentration and focus on completing their coursework which will effect negatively on their academic (Abu-Shanab, 2015). Study by Samaha and Hawi (2016) reported that the risk of smartphone addiction can be associated to life satisfaction via academic performance and perceived stress. It shows that students that achieve low academic performance will likely experience less life satisfaction and more likely prone to smartphone addiction.

2.2 Impact of Smartphone on Psychological Health

Problematic smartphone use might lead to development of certain behavioural and mental problems. The attachment that youth in this era has with their smartphone made them to feel they cannot live without their smartphone around them.

Students tend to surf internet and play online games as way to release their mental stress from the stress that they experience in term to escape from problems that they face from their friends or their school work (Kim, 2013). Students in the pass depend on computer to surf internet to cope with their stress problem however in today's society, students tend to depend more on smartphone due to the easy accessibility of internet.

Study by Kibona and Mgaya (2015) shows that most of the students utilize smartphone for social activities (65%) compared to education activities (20%). Moreover, 65 percent of the students agreed that they utilize smartphone to surf social networking sites (Twitter, Whatsapp, Instagram, facebook) while doing their academic assignment. 48 percent of them spent around 5 to 7 hours per day on smartphone. This study further identified 85 percent of the students are addicted to their smartphones.

Study conducted on smartphone users revealed that users that overuse smartphone experience higher level of depression, trait anxiety and state anxiety compare to normal smartphone users (Hwang et al., 2012).

Berger (2013) study shows that students who utilize mobile phone more tend to achieve lower grades and have higher anxiety and felt less happy than students who do not utilize mobile phone frequently.

Study by Smith (2013) had also shown that students tend to have high anxiety and their GPA was low when they tend to use their phone more. The students mention that they had anxiety when they had to be away from their phone for certain amount of time as they are dependent on their phone.

The increasing frequency and time spend (Lee et al., 2014) beside of dependency on smartphone among youth can be seen as an indicator of development of smartphone use from a habit to an addiction (Roberts et al., 2014).

2.3 Impact of Smartphone on Social Interaction

Communication play a vital part of human life. This indicates technology changing rapidly to match human necessities. In the modern society, communication becomes easier with the development of technology and it influences the style of communication between individuals. The unique and multiple application features of smartphones make it different from other phones.

However, social engagement between individuals is jeopardized with its unique application by limiting their face to face interaction and develop more chat rooms communication. It might cause lack of real life social interaction that contribute to relationship issues to arise, and interference in students' academic work (Kuss & Griffiths, 2011).

Society is moving towards smartphone world, therefore obviously it can be seen that individuals are investing most of their time on the screen chatting and engaging in social media than meeting face to face with their friends and families. Although the application of smartphones increases the ability to interact with social mates easily and freely but it poses danger on relationship between human. Even though individuals are able to create groups of friends and communicate through various social platforms, but oral communication is seen to be lack.

The finding based on study conducted to investigate the relationship between the qualities of in person social

interaction with the presence of mobile devices shows that conversations without mobile devices were significantly superior compared with interaction with presence of mobile communication technologies (Misra et al., 2014). Lower levels of empathy concern were reported when communication did in presence of mobile devices while higher level of empathy is seen in individuals who communicate in absence of mobile devices (Misra et al., 2014).

Another study conducted on the influences of mobile communication technology presence on the quality of human face to face interaction shows that used of mobile devices cause negative effects on individuals' conversation quality, closeness and connection especially noticeable during conversation related to personally meaningful topics (Przybylski & Weinstein, 2012).

Table 1. Studies on positive and negative effects of smartphone use

Study	Positive	Negative
Conchrane, 2010	Boost teaching and learning experience (sharing and discussion between teacher and students)	-
Hanson et al., 2011	-	Motivated on updating status on social media rather on learning purpose
Kuss & Griffiths, 2011	-	Lack of real life social interaction (cause relationship issues to arise, and interference in students' academic work)
Woodcock et al., 2012	Increase students learning knowledge (involve in learning activities anywhere, anything and anytime)	-
Froese et al., 2012	-	Distract learning process (during texting)
Tindell & Bohlander, 2012	-	Do not pay attention during lecturer (too much texting)
Hwang et al., 2012	-	Experience higher level of depression, trait anxiety and state anxiety (overuse)
Przybylski & Weinstein, 2012	-	Negative effects on individuals' conversation quality, closeness and connection
Elder, 2013	-	Score low (unable recall much information taught during lecturer)
Berger, 2013	-	High anxiety and felt less happy (overuse)
Smith, 2013	-	High anxiety (overuse)
Sarwar & Soomro, 2013	Access to various learning resource and provide opportunities for distance learning.	
Alfawareh & Jusoh, 2014	-	Do not utilize for learning (use for making calls, snap pictures)
Roberts et al., 2014	-	Development of smartphone use from a habit to an addiction
Misra et al., 2014	-	Lower levels of empathy concern when communication done in presence of mobile devices compare to absence of mobile devices
Abu-Shanab, 2015	-	Experience headache and interruption on students concentration and on completing their coursework(frequent messages and calls)
Kibona & Mgaya, 2015	-	Addicted to smartphones
Samaha & Hawi, 2016	-	Smartphone addiction negatively impacts academic performance and life satisfaction

Based on the review above, it seems that the negative impacts of smartphone use among students are tremendous and positive impacts are minor. Although smartphones offer students with several conveniences in their life (provide various learning resources) but it also affects students negatively by distracting their learning process, lower their academic performance, developing psychologically problems (feel anxious, develop addiction toward smartphone) and social problems (lack of real life social interaction, arise of relationship issues).

2.4 Study in Malaysian on Smartphone Use

There are a few studies done in Malaysia on smartphone use among the students. Study by Hong et al. (2014) revealed that students spend more of their time on smartphone compare to their studies and 43.3 percent of the youth are spending about 4-6 hours daily on their smartphone.

Furthermore, study conducted by Qadri et al. (2015) showed that 78 percent of students utilize their time by visiting social media sites through their smartphones. Finding on the purposes of smartphone used among students shows that four highly used motive of smartphone are “messaging (98.1%), social networking (91.6%), visiting websites (89.7%) and playing games (84.1%)” (Qader & Omar’s, 2015).

Based on a research conducted among medical students from University Putra Malaysia showed that the prevalence of at-risk cases which can be identified as smartphone addiction is 46.9 % of students out of 228 students (Ching et al., 2015).

A study was conducted among medical students and staffs in the Faculty of Medicine University Teknologi Mara (UiTM) to observe their smartphone use pattern and identify respondents that are addicted to their smartphone. The finding showed that the respondents use their smartphone more than three hours daily and majority of them utilizing it for social media purposes (Whatsapp, Facebook, Instagram and others); the respondents are indicated as heavy smartphone users. Moreover, 52.2 percent of the respondents were seen at risk of becoming addicted to their smartphone.

3. Conclusion

Research on smartphone usage in Malaysian context are still limited as can be seen from the review above there are only few studies on smartphone use been conducted among the Malaysian students. Past studies in Malaysia focus on investigating the duration of time students spent on smartphones (Hong et al., 2014), activities done on smartphones (Qadri et al., 2015; Qader & Omar’s, 2015) and identifying students that at risk of developing addiction behavior (Ching et al., 2015). However, research on investigating and understanding different aspect of smartphone use among the students such as psychological impact or social impact of smartphone use on their lives are still lacking. Although studies had been conducted on the impact of smartphone use on students psychological or social life in many other countries (Kuss & Griffiths 2011; Przybylski & Weinstein, 2012; Hwang et al., 2012; Berger, 2013; Smith, 2013) but the culture and usage pattern of students in Malaysia might differ therefore the impact on students might be different. Moreover, research on problematic smartphone use among the Malaysian student population has never been explored from various aspects.

The purpose of this review is to identify the motive of students in utilizing their smartphones; positive and negative effect of smartphone use on student’s life in term of their education, socialization and psychological health. Furthermore, to review on previous studies on smartphone used conducted in Malaysia.

The finding of this study would help the researcher to identify the positive and negative impact of smartphone that can influence student’s life. Furthermore, the finding could encourage researchers in this field to investigate method to overcome the negative effects that students might face if they overused their smartphone.

References

- Abu-shanab, E. (2015). The Influence of Smart Phones on Human Health and Behavior : Jordanians’ Perceptions. *International Journal of Computer Networks and Applications*, 2(2), 52-56.
- Alfawareh, H. M., & Jusoh, S. (2014). Smartphones usage among university students: Najran University case. *International J. of Academic Research*, 6(2), 321-326. <https://doi.org/0.7813/2075-4124.2014/6-2/B.48>
- Anderson, K. E. (2016). Getting acquainted with social networks and apps: Instagram’s instant appeal. *Library Hi Tech News*, 33(3), 11-15. <https://doi.org/10.1108/LHTN-03-2016-0011>
- Berger, E. (2013). *Study: Students who use cellphones more get lower grades*.
- Boulos, M. N., Wheeler, S., Tavares, C., & Jones, R. (2011). How smartphones are changing the face of mobile and participatory health care; an overview, with example from eCAALYX. *Biomed Eng Online*, 10, 24.
- Ching, S. M., Yee, A., Ramachandran, V., Lim, S. M. S., Sulaiman, W. A. W., Foo, Y. L., & Hoo, F. K. (2015).

- Validation of a Malay version of the smartphone addiction scale among medical students in Malaysia. *PLoS ONE*, 10(10), 1-11. <https://doi.org/10.1371/journal.pone.0139337>
- Cochrane, T. D. (2010). Beyond the Yellow Brick Road: mobile Web 2.0 informing a new institutional e-learning strategy. *ALT-J*, 18(3), 221-231. <https://doi.org/10.1080/09687769.2010.529110>.
- DeGusta, M. (2012). Are Smart Phones Spreading Faster than Any Technology in Human History? *MIT Technology Review*. Retrieved from <http://www.technologyreview.com/news/427787/are-smart-phones-spreading-f...>
- Elder, A. D. (2013). College students' cell phone use, beliefs, and effects on their learning. *College Student Journal*, 47(4), 585-592. Retrieved from <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=27&sid=a3638b70-b6d0-4808-8f815018d1658798%40sessionmgr115&hid=107>
- Froese, A. D., Carpenter, C. N., Inman, D. A., Schooley, J. R., Barnes, R. B., Brecht, P. W., & Chacon, J. D. (2012). Effects of classroom cell phone use on expected and actual learning. *College Student Journal*, 46(2), 323-332. Retrieved from <http://web.a.ebscohost.com/ehost/pdfviewer?vid=5&sid=c47a113c-266f-4e8a-9da84c55fc6c2d2f%40sessionmgr4001&hid=4106>
- Hanson, T. L., Drumheller, K., Mallard, J., McKee, C., & Schlegel, P. (2011). Cell phones, text messaging, and Facebook: Competing time demands of today's college students. *College Teaching*, 59(1), 23-30. <https://doi.org/10.1080/87567555.489078>
- Hong, Y. H., The, B. H., & Soh, C. H. (2014). Acceptance of Smart Phone by Younger Consumers in Malaysia. *Asian Social Science*, 10(6).
- Hwang, K. H., Yoo, Y. S., & Cho, O. H. (2012). Smartphone overuse and upper extremity pain, anxiety, depression, and interpersonal relationships among college students. *The Journal of the Korea Contents Association*, 12(10), 365-375.
- Kibona, L., & Mghaya, G. (2015). Smartphones' Effects on Academic Performance of Higher Learning Students. *Journal of Multidisciplinary Engineering Science and Technology*, 2(4), 3159-3140.
- Kim, H. (2013). Exercise rehabilitation for Smartphone addiction. *J Exer Rehab*, 9, 500-505.
- Koszalka, T. A., & Ntloedibe-Kuswani, G. (2010). Literature on the safe and disruptive learning potential of mobile technologies. *Distance Education*, 31(2), 139-157. <https://doi.org/10.1080/01587919.2010.498082>.
- Kuss, D. J., & Griffiths, M. D. (2011). Online social networking and addiction—a review of the psychological literature. *International journal of environmental research and public health*, 8(9), 3528-3552.
- Lee, Y., Chang, C., Lin, Y., & Cheng, Z. (2014). The dark side of smartphone usage: Psychological traits, compulsive behavior and technostress. *Computers in Human Behavior*, 31, 373-383.
- Malaysian Communications and Multimedia Commission (MCMC)*. Retrieved from <https://www.skmm.gov.my/>
- Miller, G. (2012). The Smartphone Psychology Manifesto. *Perspectives on Psychological Science*, 7(3), 221-237.
- Misra, S., Cheng, L., Genevie, J., & Yuan, M. (2014). The iPhone Effect: The Quality of In-Person Social Interactions in the Presence of Mobile Devices. *Environment and Behavior*, 48(2), 275-298. <https://doi.org/10.1177/0013916514539755>
- Przybylski, A. K., & Weinstein, N. (2012). Can you connect with me now? How the presence of mobile communication technology influences FTF conversation quality. *Journal of Social and Personal Relationships*, 1-10.
- Qader, I. K. A., & Omar, A. (2015). Smart phones usage among the millennial generation in Malaysia. *Journal of Scientific Research and Development*, 2(14), 1-4.
- Qadri, M., Abubaka, Y., & Ibrahim, J. (2015). Prevalence of Mobile Usage among University Students: A Case Study of International Islamic University Malaysia. *International Journal of Scientific and Research Publications*, 5(12).
- Rambitan, V. M. M. (2015). The Effect of Smartphone on Students' Critical Thinking Skill in Relation to the Concept of Biodiversity. *American Journal of Educational Research*, 3(2), 243-249.
- Rung, A., Warnke, F., & Mattheos, N. (2014). Investigating the Use of Smartphones for Learning Purposes by Australian Dental Students. *JMIR mHealth uHealth*, 2(2). Retrieved from <http://mhealth.jmir.org/2014/2/e20/>

- Roberts, J. A., Yaya, L. H. P., & Manolis, C. (2014). The invisible addiction: Cell-phone activities and addiction among male and female college students. *Journal of Behaviour Addiction, 3*(4), 254-265.
- Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior, 57*, 321-325.
- Sarwar, M., & Soomro, T. R. (2013). Impact of Smartphone's on Society. *European Journal of Scientific Research, 98*(2), 216-226.
- Singh, M. K. K., & Samah, N. A. (2016). 21st Century Addiction: Smartphones. *Proceedings of the Third International Education Postgraduate Seminar, 248-254*.
- Smartphone: The Usage and Addiction among Medical Students and Staffs in a Public University in Malaysia*. Retrieved from <http://webcache.googleusercontent.com/search?q=cache:uJNoYtkyBLIJ:mojet.net/public/frontend/uploads/submissionrevfolder/289/smartphone-the-usage-and-addiction-among-medical-students-and-staffs-in-a-public-university-in-malaysia-33mws.docx+&cd=1&hl=en&ct=clnk&gl=my&client=firefox-b>
- Skierkowski, D., & Wood, R. M. (2011). To text or not to text? The importance of text messaging among college-aged youth. *Computers in Human Behavior, 28*(2), 744-756.
- Smith, B. (2013). *Study: Cellphone Use Leads to Lower GPA, More Stress and Anxiety*. Retrieved from <http://www.redorbit.com/news/health/1113022165/college-student-cell-phone-smartphone-use-lower-gpa-higher-anxiety-stress-levels-120613/>
- Tindell, D. R., & Bohlander, R. W. (2012). The use and abuse of cell phones and text messaging in the classroom: A survey of college students. *College Teaching, 60*(1), 1-9. Retrieved from <http://www.tandfonline.com>
- Woodcock, B., Middleton, A., & Nortcliffe, A. (2012). Considering the Smartphone Lerner: An investigation into student interest in the use of personal technology to enhance their learning. *Student Engagement and Experience Journal, 1*(1), 1-15.

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