The Determinants of Smartphone Usage among Students in Institute of Higher Learning

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ABSTRACT

The usage of smartphone today have become a phenomenon in which a significant improvement can be seen in developing nations. Nowadays, smartphones have become the integral parts of business and personal lives. The purpose of this paper is to examine determinants of smartphone usage among students in Institute of Higher Learning (IHL) in Malaysia. Three factors were investigated namely; entertainment, learning process, and social interaction. Data were gathered through structured questionnaires by using a sample of 200 students of three IHLs in Malaysia; International Islamic University College Selangor (KUIS), Universiti Sains Islam Malaysia (USIM), and Universiti Kebangsaan Malaysia (UKM). Data obtained were analyzed using Statistical Package for Social Sciences (SPSS). The results of descriptive, correlation, and regression analysis suggest that all the three factors have significant influence on smartphone usage among students with social interaction scores the highest. However, the level of usage for the three factors is just medium which suggest that there are other factors that determine the usage of smartphone among students in IHLs apart from the three factors studied.

Keywords: Smartphone Usage, Institute of Higher Learning, Entertainment, Learning Process, Social Interaction.

ABSTRAK

Penggunaan telefon pintar pada masa ini telah menjadi fenomena di mana terdapat peningkatan yang ketara di negara-negara membangun. Pada masa kini, telefon pintar telah menjadi sesuatu
yang penting dalam segala aspek seperti perniagaan dan kehidupan peribadi. Kajian ini bertujuan untuk mengkaji faktor penggunaan telefon pintar dalam kalangan mahasiswa/i di Institusi Pengajian Tinggi (IPT) di Malaysia. Terdapat tiga faktor yang dikaji iaitu faktor hiburan, proses pembelajaran, dan interaksi sosial. Data didapat melalui borang soal selidik berstruktur dengan menggunakan sampel seramai 200 orang mahasiswa/i dari tiga IPT di Malaysia iaitu Kolej Universiti Islam Antarabangsa Selangor (KUIS), Universiti Sains Islam Malaysia (USIM), dan Universiti Kebangsaan Malaysia (UKM). Data yang diperoleh dianalisis menggunakan Pakej Statistik untuk Sains Sosial (SPSS). Hasil analisis deskriptif, korelasi, dan regresi berganda menunjukkan bahawa kesemua faktor mempunyai hubungan yang signifikan dengan penggunaan telefon pintar dalam kalangan mahasiswa/i, dan faktor interaksi sosial merupakan faktor utama penggunaan telefon pintar. Walaubagaimanapun, tahap penggunaan bagi kesemua faktor adalah hanya di tahap sederhana. Ini membuktikan terdapat faktor-faktor lain yang mempengaruhi penggunaan telefon pintar selain faktor hiburan, proses pembelajaran, dan interaksi sosial.


INTRODUCTION

Smartphone is defined as a cellular telephone with built-in applications and Internet access. It was first released in year 2000 by Ericsson and the model was called R380. Smartphone is an outcome of a merging between a cell phone and computer functionality (Alfawareh & S. Jusoh; 2014). Nowadays, smartphones have been used to replace desktop or mobile computers. In addition to digital voice service, smartphones provide text messaging, e-mail, Web browsing, still and video cameras, MP3 player, and video playback and calling (S. Saraswathi, 2017). Smartphones also allow users to play electronic games, listen to radio, watch TV, and store data. Not to mention the mundane usage of smartphone as clocks, calculators, and memos. In some develop countries like Korea and Japan, smartphones are also used as an automatic credit card or embedded into other devices such as palm pocket or laptop PC (Raento, M. et. al., 2009). Some smartphones have sophisticated applications such as a camera which can work as a scanner.

As the usage of smartphone has increased due to its functionality which helps in daily life and as young consumers have the highest smartphone penetration in the market place, this paper aims to investigate smartphone usage among students in higher learning education. This paper focuses on three factors as determinants of smartphone usage among students of IHLs; entertainment, learning process, and social interaction.

LITERATURE REVIEW

The prevalence of Smartphone usage
Smartphones provide more and more applications for an increasingly a wider range of usage situations. They have indeed become an increasingly integrated part of people's everyday life.
Smartphones have emerged as most rapidly growing market segment in the telecommunication industry (S. Saraswathi, 2017).

According to Nielsen Smartphone Insights (2014) as reported in Digital Integration & Business Transformation Asia Conference (2016), smartphone penetration in Malaysia is 80 percent, which is just slightly below Hong Kong and Singapore that achieve the highest smartphone penetration in the world (87 percent). It was also reported that Malaysian use their mobile phone for social media (20%), entertainment (19%), games (17%), general info search (15%), email (12%), local search (9%), and shopping (9%).

Several studies revealed that nearly every students at a college level own smartphones and university students are among the highest contributors to the increasing sales of smartphones (N.M.M. Mohtar, M.A. Hassan, M.S. Hassan and M.N. Osman, 2013; N. Park and H. Lee, 2012; Jacob and Isaac, 2008). Indeed the technology in the smartphones has given the life changes for students in institute of higher learning. The use of smartphones among students has contributed positively to academic pursuit; and socially, access to social media sites, such as Facebook, WhatsApp, Twitter and so on has made connection to the rest of the world easy and interesting to the students. In addition, multimedia and entertainment services like camera, music, games, and so on served as good companion to the students (Falayi, O. R., & Adedokun, A. J.; 2014).

Entertainment

According to a survey entitled The Consumer Barometer conducted by Google and TNS (2014), Malaysia leads the world in terms of smartphone usage. The survey revealed that over half (55%) of Malaysians use their mobiles to listen to music, half (50%) play online games and almost seven out of ten (67%) Malaysians watch online videos on their phones.

With entertainment moving from traditional media such as TV to smartphones, many operators are capitalising on the trend by bundling apps with mobile services. Nowadays there are many game apps developed and can be accessed widely among the smartphone community. Woodcock et al. (2012) assert that students always use their phones to play games and other leisure activities compared to learning purposes. It was reported in his study that students from the faculty of Arts, Computing, Engineering and Science (ACES) at Sheffield Hallam University did not fully utilize smartphones for learning purposes but more into playing games and leisure activities. Laird (2012) in his study also reported similar finding. He revealed that 55% of students use gaming apps either regularly or as a leisure activity on their smartphones. Meanwhile, White and Mills (2012) found that students were increasingly adopting smartphones with the focus on personal use rather than education purposes.

Moreover, the result of a study by Mohd Azam Osman et. al. (2012) suggests that the most attractive market for smartphones is consumers from younger age groups with purchasing power. They highlighted that younger consumers, especially male would pay more attention on the technical aspects of the smartphone such as computing powers, operating platform, and software applications. This is because they are often the consumers of media and entertainment applications. Thus, they will pay attention to the performance of the smartphone, in order to ensure smooth and delightful experience. In the same study, Mohd Azam Osman et. al. (2012) reported that mobile games have a higher acceptance level among the respondents compared to
e-mail, in which approximately 84% of the respondents have experience of gaming via their smartphones.

Learning Process
Manimekalai Jambulingan and Shahryar Sorooshian (2013) highlighted that there are many features of smartphones that can enhance learning process among students. Students can get access to e-books, conduct podcasting, download lecture notes, record lectures, and engage in social networking activities and use email for learning purposes. With the connection of internet, smartphones also facilitates students for collaborative assignments and video conferencing with their class mates and lecturers. According to Hingorani et al. (2012), smartphones have features that are comparable to an average computer, and this can engage students in far more dynamic ways than a laptop or tablet computer.

Study conducted by Kim and co-researchers on adopting smartphone as learning technology at Seoul National University, Korea revealed that generally each students had 80 applications on their smartphones. 16% of the applications were used for some kind of learning (N. Park and H. Lee, (2012). Meanwhile, a study conducted in Malaysia among university students revealed that smartphones are seen as a necessity for learning at higher learning institutions. They claimed that they used smartphones for sharing notes between classmates, recording lectures, as well as taking pictures of assignments for future reference and sharing exam results on a Facebook through their smartphones (N.M. M. Mohtar et. al., 2013).

Alfawareh and Jusoh (2014) collected surveys of 324 undergraduates’ students at Najran University to verify trends in smartphones under two categories; normal usage and usage for learning. It was found that smartphones have been used to replace desktop or mobile computers and further revealed that university students have not fully utilized their smartphones for learning purposes. It acknowledges smartphone’s disruptive effects of texting on students learning.

Study conducted by Woodcock et. al. (2012) involving 272 students from the faculty of Arts, Computing, Engineering and Science (ACES) at Sheffield Hallam University reported that only 188 of them own a smartphones. From 188 owning a smartphone, 88 declared using applications for learning purposes, and 76% of the remaining 100 responded positively to the question “Would you consider using an application if it benefitted your studies?” However, 4% disagreed, whilst the remaining 20% were neutral. Further interview was then conducted and findings revealed that even though useful applications for smartphones have been identified, students do not generally think of their smartphones as being core learning devices. It is also evident that students associated their phones much more with playing games and other leisure activities than with learning.

Social Interaction
According to Yoon (2003), most youth in Seoul, Korea used mobile phone to contact family and friends. Youth seen smartphone as a desire to keep in touch with friends, while parents seen this as an opportunity to improve their accessibility to their children (Oksman & Turtiainen, 2004). Whatever it is, indeed smartphones help in maintaining good communication and social relationship.
Smartphones is one type of media that can facilitate opportunities to develop extremely strong, persistent, and real time ties to peers while also interacting with a wide range of cultural content such as pictures, music, and video (Watkins, 2009). Also the utilization of smartphone SMS features and Internet applications has resulted in the expansion of people’s social networks and connections with instant personal updates from people in their social network.

With the emergence of rapid technology, it has change the way people access, interact with, create, and share data and information. Nowadays, many people have move from traditional medium of communication to social network platform. Social network sites is defined as web based services that allow users to construct a public or private profile within a system, a list of users’ friends and a view of their list of connections and those made by others within that system. Popular social network sites in Malaysia are Facebook, YouTube, LinkedIn, MySpace, and Twitter (GreyReview, 2009).

Some social networks are purely meant to be accessed on a smartphone or tablet. Four most popular social networks on mobile are instagram, snapchat, tumblr, and pinterest (Daniel Nations, 2017). According to Nielsen Smartphone Insights (2014) as reported in Digital Integration & Business Transformation Asia Conference (2016), Malaysians spend an average of 5.1 hours a day on the internet, spend an average of 2.8 hours a day on social networks, and 47% Malaysians access websites from their mobile phone.

**Students and Smartphone Usage**

Smartphone nowadays is a must among students. The main concern for institutions especially higher learning institution to allow the use of smartphone is more on learning process since the education system involves blended learning in students learning activity. Previous study indicates that the use of mobile or smartphone may reduce barriers to educational outcomes comparable to those of traditional educational method (Misagal, 2016). Therefore, students will explore and learn more on any field that they involve in. However this main projected outcome being debated among scholars due to the finding which do not support this educational interactive platform. Most of findings show that students in library used smartphone for email, instant messaging, web surfing rather than checking the library material or downloading academic journal (Hanson, 2012). This is quite a surprising outcome and need to be given proper attention since the outcome defeated the main objective of giving freedom to students having and using smartphone.

**METHODOLOGY**

**Research Variable**

This study consists of two variables; dependent and independent variables. Dependent variable is the usage of smartphones among students of higher learning, while the independent variables are entertainment, learning process, and social interaction.

The model depicted in Figure 1 is used to study the relationship between smartphone usage and three independent variables (Purpose of smartphone usage – Entertainment, Learning process, and Social interaction).
**Hypothesis**
This study attempts to test the following hypothesis:

H1 : The degree of smartphone usage has significant relationship with entertainment, learning process and social interaction factors.

**Data Collection and Sample**
The data gathered for this study was obtained using a survey process. A convenience sample was employed in this survey process and it involved undergraduate students attending one public university and two private universities in western region of Malaysia. The three universities are Universiti kebangsaan Malaysia (UKM), Kolej Universiti Islam Antarabangsa Selangor (KUIS), and Universiti Sains Islam Malaysia (USIM). The questionnaires were distributed equally for each institutions. This study targeted 300 respondents who are using smartphone however only 200 responded and classified as valid. This survey data were analyzed using SPSS software. Overall, this survey process produced responses from approximately 66.7% of the potential respondents.

**Research Instrument**
The questionnaire comprised of 20 items and the respondents were asked to express their opinion on the scale of 1 to 4 where 1 is strongly disagree, 2 is disagree, 3 is agree, and 4 is strongly agree. The questionnaire was prepared in two versions that are in Bahasa Malaysia and English. There are three sections on this questionnaire, section A is about demographic profile, section B is about independent variables, and section C is about dependent variables.
ANALYSIS AND FINDINGS

Demographic
Of the student surveyed, 65.5% are females and 34.5% are males students. The majority of students are in the age of 23 to 27 years old. In terms of level of education, 80.5% are in Bachelor degree program while only 19.5% are Diploma students. Of the 200 respondents, 61.5% are from USIM, 21.5% from KUIS and 17% are from UKM. Most of them spend less than RM50.00 a month for phone bill which is referring to prepaid usage method. The summary of the demographic analysis is shown in table 1.

Table 1: Demographic Profile of Respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>69</td>
<td>34.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>131</td>
<td>65.5</td>
</tr>
<tr>
<td>Age</td>
<td>18 – 22</td>
<td>96</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>23 – 27</td>
<td>102</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>28 and above</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Education Level</td>
<td>Diploma</td>
<td>39</td>
<td>19.5</td>
</tr>
<tr>
<td></td>
<td>Bachelor Degree</td>
<td>161</td>
<td>80.5</td>
</tr>
<tr>
<td>Monthly Spending on Smartphone</td>
<td>Less than RM50.00</td>
<td>95</td>
<td>47.5</td>
</tr>
<tr>
<td></td>
<td>RM50.00 – RM80.00</td>
<td>76</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>RM81.00 – RM110.00</td>
<td>21</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>More than RM110.00</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Hypothesis Analysis
Correlation analysis were employed to analyze the data and test the hypothesis in this study. Based on the analysis, all the three factors have significant relationship with smartphone usage. In terms of influence of the factors, results revealed that the main purpose for smartphone usage is for social interaction which is 11.56% compared to learning process which is only 7.78% and entertainment 2.52%. This results is supported by study conducted by Tulane (2010) and Beaver (2010) which found that cellphone and text message will give impact to interpersonal relationship (S.Sraswati, 2017). There is more other purposes other than this three factors which lead to the smartphone usage among students.

Table 2: Correlation Result of Smartphone Usage

<table>
<thead>
<tr>
<th>Factors</th>
<th>Analysis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>Pearson Correlation</td>
<td>0.159*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
</tr>
<tr>
<td>Learning Process</td>
<td>Pearson Correlation</td>
<td>0.279**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>Pearson Correlation</td>
<td>0.340**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
</tr>
</tbody>
</table>

Dependent Variable: The Usage of Smartphone
*Correlation is significant at 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)
Table 3: Degree of Influence of the Three Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>0.0252</td>
</tr>
<tr>
<td>Learning Process</td>
<td>0.0778</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>0.1156</td>
</tr>
</tbody>
</table>

Level of Usage

It is also found that the social interaction factor scores the highest in mean value compared to the other two factors which is 3.39 compared to learning process (3.15) and entertainment (2.38). However this scores fall under medium score which means that the level of usage for this three factors is medium. This suggests that there are other factors which are not in this study that become the main purpose of smartphone usage.

Table 4: Level of Usage of the Three Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>2.38</td>
<td>Medium</td>
</tr>
<tr>
<td>Learning process</td>
<td>3.15</td>
<td>Medium</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>3.39</td>
<td>Medium</td>
</tr>
</tbody>
</table>

DISCUSSION

The purpose of this study was to investigate smartphone usage among students in IHLs in Malaysia. Specifically, this study examined three determinants of smartphone usage; entertainment, learning process, and social interaction.

There are various reasons for the usage of smartphone among students at higher learning institutions. Most students will give reasons that the phone will help them much on learning. However results from this study revealed that it is not the main purpose. This factors only scores 7.78% which is too small compared to social interaction. If this three factors combined, the scores only 21.59% which is still fall under lowest rank in terms of influences. The other 78.41% of the smartphone usage is influenced by other factors which are not discovered in this study.

This can be said that smartphone is not fully utilized for learning process which may defeated the actual purpose of giving a chance for a student to having smartphone which may help them in explore new informations, issues, techniques and others that benefited their academic knowledge. In terms of usage, it also shows that the level of usage of this three factors are medium which means that students spend their money to the smartphone for other factors which is a very interesting part that need to be discovered. In addition, future research should be conducted qualitatively or in a mixed method so as to provide the general causal explanations as well as richer evidence.

References:


