Pattern of smartphone internet use among international students in a university in Bangkok, Thailand

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Abstract

Purpose - Forty-five percent of the world population used the Internet in 2016. Sixty percent of the Thai population uses the Internet. University students predominately contribute to the high usage trend. The study aimed to determine the pattern of smartphone Internet use among international students in a university in Bangkok, Thailand.

Design/methodology/approach - A cross-sectional study was carried among 351 international students aged 18 to 54 through a self-administered online questionnaire developed by the researcher. Validity and reliability of questionnaire were checked and deemed acceptable for use (Cronbach's alpha = 0.89; average IOC = 0.96). Regarding Internet usage pattern, this study examined the following: Internet-related activities, the situation of use, place of most access, frequency, and amount of time spent. Purposive sampling was employed. Descriptive statistics and a chi-square test were used in data assessment.

Findings - More than 90% of males reported engaging in social networking and information seeking. More than 90% of females reported to engage in social networking, information seeking, and text messaging. Online shopping was found to be significantly associated with gender (p = .001). Roughly 70% of males used their smartphones when doing homework; more than 50% of females used their smartphones while eating. More than 70% of males and females said to mostly accessed the Internet through their smartphones at home. Over 70% of males and females go on the Internet more than five times per day. Nearly 30% of males spent three to four hours on the Internet during the weekends; while one-third of females spent seven hours or more during the weekends. More than one-third of males and females spent three to four hours during the weekdays.

Originality/value - Results revealed subtle differences between male and female Internet usage pattern. Females spent more time on the Internet through the smartphone than males. However, there were no significant differences in Internet usage pattern between males and females except online shopping.

Keywords Internet use, Smartphones, International students

Paper type Research paper

Introduction

Forty-five percent of the world population used the Internet in 2016 [1]. Asia accounted for 50% of the users according to Miniwatts Marketing Group whereas the percentage of Internet use in Europe and North America fell around 17% and 9% respectively [1]. Moreover, 60% of the Thai population uses the Internet [1]. University students predominately contribute to the high usage trend [2]. A study by the Electronic Transactions Development Agency (ETDA) found that the heaviest user group was Generation Y (those born in the 1980s and 1990s) [3]. Bangkok—given the fact that it is a more developed area and has a better Internet infrastructure—has greater amounts of Internet users as opposed to other areas in Thailand [3].

Internet usage has proliferated in recent years with the introduction of smartphones [3]. Today, smartphones can be used for countless things, attributable to their high functional capabilities. Its compact size and portability allow for one to

readily access the Internet at any time and location, given that there is Wi-Fi. Smartphones, when used right, enhances productivity. They allow users to find information and engage in social interactions. Moreover, these devices can be utilized as a diversion, for relaxation, and entertainment [4].

As useful as smartphones may be, there are downsides to its use. The device may contribute to accidents, poor health, bring about economic consequences, and lower academic performance [5-11]. People around the world are increasingly devoting more time to viewing digital displays. They do not necessarily recognize its full impact; many tend to overuse the Internet without realization. It is essential to examine how students are using the Internet via the smartphone. Therefore, the objective of this cross-sectional study was to determine the pattern of smartphone Internet use among international students in a university in Bangkok, Thailand.

Method

Study design and sample

Purposive sampling was employed for the cross-sectional study. International program students in Bangkok, Thailand, aged 18-54 years enrolled in the research. Students must own a smartphone, can comprehend English, and willing to participate. Students who did not own a smartphone or unwilling to participate were excluded from the study. Data was collected between June and August 2017. Using Krejcie and Morgan's formula [12], the required sample size was found to be 351 with a confidence level of 0.05, the expected population proportion of 0.5.

Measures

The survey consisted of a socio-demographic characteristics section (8 questions) and pattern of Internet use section (16 questions). Regarding Internet usage pattern, this study examined the following: Internet-related activities, the situation of use, place of most access, frequency, and amount of time spent during the weekends and weekdays. Validity and reliability of the questionnaire were checked and deemed acceptable to use in research (Cronbach's alpha = 0.89; average IOC = 0.96).

Data collection

An online questionnaire would reach a population of Internet users more appropriately than a paper-based survey, for this study, the questionnaire was developed through a free online survey generator. Potential participants were emailed the link to the survey. Flyers containing the QR code and web link were distributed throughout campus. Students were able to quickly and easily access the survey by scanning the QR code provided on the announcement flyers. In the questionnaire, respondents were presented with the basic information (research purpose, instructions, and what to expect from the study). Consent was asked from the participants before the start of this study. To protect participants from doing multiple submissions participants were required to provide their phone number and current e-mail. Identity is kept confidential and is not mentioned. Data was directly saved in an excel file.

Data analysis

The Statistical Package for Social Science (SPSS) version 22.0 (licensed by Chulalongkorn University) was used for data analysis. The socio-demographic characteristics of the study sample were described using descriptive statistics. Chi-square was used in determining whether an association between two variables was of significance ($p<0.05$).

Ethical consideration

Before conducting the study, the Ethics Review Committee at Chulalongkorn

University had evaluated and approved the research project, COA No. 126/2017.

Results

Of the 351 participants, 155 were male, and 196 were female. The mean age for males and females were 27.5 (SD ± 7.6) and 26.3 (SD ± 6.7), respectively. Data shown in Table 1 were separated by age groups based on the mean age. Almost all males and females aged 18 – 26 were single. Approximately 40% of students aged 27 – 54 were married. More than half of male and female participants were from Southeastern Asia. Above 70% of males and females aged 18 – 26 were undergraduates; while, more than 60% of students aged 27 – 54 were master students. More than half of all males and females aged 27 – 54 had a monthly household income less than 45,000 Baht. More than 50% of females aged 18 – 26 received a monthly household income of 45,000 Baht or more (Table 1).

All of the participants used the Internet and a smartphone. Almost 100% of males reported having engaged in social networking (Table 2). The second most common activity was seeking information online (97.4%), while e-mailing and texting/messaging tied for third (88.4%). Online shopping had been the least done activity among males (33.5%). More than 90% of females reported having engaged in social networking, information seeking, and texting/messaging. The least done activity among females was mobile social gaming (41.3%). Online shopping was found to be significantly associated with gender ($p = 0.001$).

Over half of males and females reported to being preoccupied with the Internet through their smartphone while doing the following: work, homework, and eat (Table 3). Using a smartphone while driving was the least reported among males and females, 21.3% and 16.8% respectively.

Table 1. Socio-demographic characteristics among international students (n = 351)

Characteristics	Males (n = 155) n (%)		Females (n = 196) n (%)	
	Age (years)		Age (years)	
	18 – 26 (n = 82)	27 – 54 (n = 73)	18 – 26 (n = 111)	27 – 54 (n = 85)
Marital status				
Single	80 (97.6)	36 (49.3)	105 (94.6)	49 (57.6)
Married	1 (1.2)	36 (49.3)	6 (5.4)	34 (40.0)
Divorced	0 (0.0)	1 (1.4)	0 (0.0)	2 (2.4)
Widowed	1 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)
Region				
Africa	1 (1.2)	10 (13.7)	0 (0.0)	1 (1.2)
Americas	6 (7.3)	2 (2.7)	5 (4.5)	2 (2.4)
Asia				
- Eastern Asia	10 (12.2)	1 (1.4)	4 (3.6)	1 (1.2)
- Southeastern Asia	60 (73.2)	40 (54.8)	96 (86.5)	70 (82.4)
- Southern Asia	3 (3.7)	20 (27.4)	4 (3.6)	11 (12.9)
Europe	2 (2.4)	0 (0.0)	1 (0.9)	0 (0.0)
Oceania	0 (0.0)	0 (0.0)	1 (0.9)	0 (0.0)
Level of education				
Undergraduate	58 (70.7)	3 (4.1)	80 (72.1)	0 (0.0)
Master	21 (25.6)	48 (65.8)	26 (23.4)	65 (76.5)
Ph.D.	1 (1.2)	19 (26.0)	2 (1.8)	18 (21.2)
Others (i.e. postdoc.)	2 (2.5)	3 (4.1)	3 (2.7)	2 (2.4)
Monthly household income				
< 45,000 Baht	30 (51.7)	30 (56.6)	31 (43.7)	38 (59.4)
≥ 45,000 Baht	28 (48.3)	23 (43.4)	40 (56.3)	26 (40.6)
N/A	24	20	40	21

Table 2. Internet activities through the smartphone (n = 351)

Activities	Males (n = 155) n (%)	Females (n = 196) n (%)	*p*-value
Streaming music	130 (83.9)	164 (83.7)	0.960
Watching videos online	136 (87.7)	159 (81.1)	0.093
Seeking information online	151 (97.4)	189 (96.4)	0.597
News and weather update	118 (76.1)	144 (73.5)	0.570
Online shopping	52 (33.5)	99 (50.5)	0.001**
E-mailing	137 (88.4)	173 (88.3)	0.972
Social networking	154 (99.4)	191 (97.4)	0.171
Calling	136 (87.7)	180 (91.8)	0.204
Texting/messaging	137 (88.4)	184 (93.9)	0.068
Mobile social gaming	74 (47.7)	81 (41.3)	0.229

Note: Significant at $^{**}p < .01$

Table 3. Situation in which the Internet was used through the smartphone (n = 351)

Situation	Males (n = 155) n (%)	Females (n = 196) n (%)	*p*-value
Driving	33 (21.3)	33 (16.8)	0.240
Doing work	99 (63.9)	120 (61.2)	
Doing homework	108 (69.7)	132 (67.3)	
Walking	35 (22.6)	37 (18.9)	
Eating	89 (57.4)	133 (67.9)	

Table 4. Place where Internet was most used through the smartphone (n = 351)

Place of most access	Males (n = 155) n (%)	Females (n = 196) n (%)	*p*-value
Home	115 (74.2)	157 (80.1)	0.419
School	24 (15.5)	23 (11.7)	
Workplace	16 (10.3)	16 (8.2)	

Table 5. Frequency of accessing the Internet through the smartphone per day (n = 351)

Frequency of accessing the Internet per day	Males (n = 155) n (%)	Females (n = 196) n (%)	*p*-value
At least one time	5 (3.2)	12 (6.1)	0.394
2 to 4 times	38 (24.5)	42 (21.4)	
More than five times	112 (72.3)	142 (72.4)	

Both males and females commonly accessed the Internet at home, 74.2% and 80.1% respectively. The second most common place of access was at school (Table 4).

This study examined the number of times students accessed the Internet through their smartphones (Table 5). Over 70% of males and females reported going on their device five times or more per day. No association was found between gender and frequency of accessing the Internet.

For the amount of time spent, students were asked to round to the nearest hour (e.g. round 2.5 hours to 3 hours). More students spent more hours on the Internet through their smartphones during the weekend than on the weekdays (Table 6). During the weekends, the majority of males spent three to four hours on their smartphones (28.3%). A fair number of them reported having spent seven or more hours (27.1%). On weekdays, most of them spent three to four hours (35.5%) or one

Table 6. Time spent on the Internet through the smartphone (n = 351)

Time spent on the Internet (hours/day)	Males (n = 155) n (%)	Females (n = 196) n (%)	*p*-value
Weekends			0.096
< 1 hour	8 (5.2)	4 (2.0)	
1 – 2 hours	24 (15.5)	20 (10.2)	
3 – 4 hours	44 (28.3)	46 (23.5)	
5 – 6 hours	37 (23.9)	61 (31.1)	
≥ 7 hours	42 (27.1)	65 (33.2)	
Weekdays			0.249
< 1 hour	11 (7.1)	11 (5.6)	
1 – 2 hours	38 (24.5)	33 (16.8)	
3 – 4 hours	55 (35.5)	69 (35.2)	
5 – 6 hours	23 (14.8)	43 (21.9)	
≥ 7 hours	28 (18.1)	40 (20.4)	

to two hours (24.5%) on the Internet. Internet use for less than an hour was the least reported amount of time amongst them. As for females, most of them were found to have spent seven hours or more on their device during the weekends (33.2%). Many females also reported to using the Internet via smartphone for five to six hours (31.1%). During the weekdays, they typically spent three to four hours (35.2%) or five to six hours (21.9%). Very few of them had reported using the Internet for less than one hour (5.6%). Between the males and the females of this study sample, there was no significant difference in the amount of time spent on the Internet through their smartphone.

Discussion

In this study, nearly all males and females engage in social networking. Results from a study by the ETDA revealed that social networking was the most popular Internet-related activity [3]. In the present study, 70% of the males reported to being on their smartphones while doing homework. The device may be used as a study tool [13]. In another view, smartphones could be distracting them from their learning; several studies have found smartphones to be correlated with lowered academic performance [10]. The present study found that more than 70% of males and females mostly accessed the Internet through their smartphone at home. Students tend to use it out of school hours [3]. In this study, nearly 75% of males and females reported accessing the Internet five or more times a day. The frequent access may be attributable to "checking habits" [14]. More females of this research said having spent 7 hours or more on their smartphones than males. Roberts and colleagues found that females spend considerably more time on their device than males; females were found to have spent an average of 10 hours, while males spent 8 hours a day [2]. Several studies have suggested that differences exist for usage patterns between genders [2, 15, 16]. Geser proposed that males find cell-phones to be used more for "instrumental purposes," while for females, they serve as a "social tool" [16]. Females use technology and the Internet as a way to cultivate and maintain relationships. Males, conversely, view the Internet as a means for information and entertainment [16, 17]. In the current study, students of both gender groups commonly spent more time during the weekends as opposed to weekdays, which makes sense because most of them would not be occupied with school.

Students spend considerable amount of time on their smartphones. When used correctly, these devices enhance productivity, offer information, and enable communication and networking. Excessive smartphone use is connected with a range of negative physical health effects. One such consequence is having neck and

shoulder pain due to poor and/or prolonged posture while using a smartphone [6]. Users may also experience issues with the eye. Staring at an illuminated screen for an extended period of time is linked to blurred or worsened vision, and strained and tired eyes [7]. Another adverse side effect would be poor physical fitness, as smartphone use is related to sedentary behavior [5, 8]. Extensive smartphone use has been linked with anxiety, depression, and sleep quality among university students. Smartphone use affects academic performance as well. Kubey et al. proposed that the overuse of technology specifically for recreational purposes is greatly related to lowered academic performance [10].

Conclusion

Results revealed subtle differences between male and female Internet usage pattern. Females spent more time on the Internet through the smartphone than males. However, there were no significant differences in Internet usage pattern between males and females except online shopping.

This study offers valuable insights for policymakers as findings may facilitate in intervention planning. Future research should include students of other programs as the present study solely focused on international students.

Limitation of this study

There were a few limitations. First, there were limits to the online survey system. It will not save an uncompleted entry; participants had to start from the beginning. Second, this study used a self-administered questionnaire. It was difficult to get students to respond to the survey and to control who could take it. There is no way to know if participants answer truthfully or wholly comprehend the questions. Third, the age range was broad. Fourth, recall bias involving time estimation may have occurred. Generalizing the results is limited.

Conflict of interest

The author declares no conflict of interest.

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