USE OF MOBILE TECHNOLOGY BY SOCIAL SCIENCES PG STUDENTS OF KURUKSHETRA UNIVERSITY, KURUKSHETRA, HARYANA: A SURVEY

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Abstract: The main purpose of doing this survey is to investigate the use of mobile technology by the post graduate (PG) students of social sciences of Kurukshetra University, Kurukshetra. The survey has found that students are using mobile technology mainly for communication purpose. WhatsApp and Facebook are the most used social media applications. Mobile devices are mainly used for E-mails, instant messaging, newspaper reading and online shopping. However, least number of students use University library website. Slow network connection and cost of data service are major reasons which prevent the use of mobile technology; while overall attitude towards mobile technology has been found positive.

Keywords: Mobile Devices; Information Searching; Social Media; PG Students; Mobile Technology.

1.0 Introduction

Mobile devices and applications provide access to information in the comfort of people's homes and offices, using their cellular phones or personal digital assistants which enables access to information without the limitations of space and time (Aharony, 2013). Mobile devices help a literate person to become an information literate. Therefore, mobile devices are not being used for calling purpose only but for getting information in hand efficiently and effectively. The abundant nature of mobile devices, combined with latest upgraded operating system (OS) platform, WiFi and 3rd Generation (3G) and above it the 4th Generation Long Term Evolution (4G LTE) network technology, excellent speed of processor along with the standard applications for accessing internet quickly, make sure the every bit of information in hand. There is a number of applications available that let the users access a dictionary to accessing the web and getting an experience of desired information in the mobile environment, so why students go anywhere. Laptops and PCs have become the past and today the PDAs, tablets, fablets and mobile devices are prevalent as the nature and curiousity of the users to seek information has changed. The present paper makes an attempt to know the use of mobile technology by the post graduate (PG) students of the social sciences of Kurukshetra University, Kurukshetra.

2.0 Related Literature

There is a lot of research on the use mobile technology and its use in a various aspect of information searching. (Cummings, Merrill, & Borrelli 2010) was conducted a study to measure whether people used the handheld devices to access the library services and found that 58.4 percent respondents used web enabled handheld mobile devices to search the library OPAC of Washington State University and 21.8 percent respondents used library catalogue a couple of times a week. Another attempt was taken regarding the students' dependence on smart

phones by Suki (2013) and it was found that 30 percent students used smart phones since more than last 2 year and and smartphone is reliable all the time for 72.5 percent students and above all 36 percent students used android operating system on their smart phones. Kumar (2014) studied the students' opinion regarding the success of mobile technology in JNU library and found that students are in favour of using mobile technology for better service and 82.25 percent students can survive without food but not a phone and all the students need help or assistance regarding use of library services on mobile. He further examined that 56.67 percent students used mobile to download e-books, e-articles, and reviews. Similarly, Nowlan (2013) conducted a study to find out the interaction of the students of University of Regina with the library on their mobile device and found that 75 percent students access the internet from their mobile to access the library website and library catalogue was a most popular accessed resource through a mobile phone. Catharine (2013) found that 76 percent of under-graduate students used mobile applications to find out the academic information. The most frequently used application was social and communication Apps as 95.7 students said they used these 1-2 times daily.

3.0 Objectives of the study

The objectives of this study follow:

1. To explore the main purposes of using mobile technology.
2. To find out information activities done by using mobile technology.
3. To find out most used social media apps and educational based features through the use of mobile technology.
4. To examine the attitude of students towards mobile technology
5. To explore the problems/reasons which prevent the use of mobile technology.

4.0 Methodology

The study was conducted on 141 post graduate students of social sciences of Kurukshetra University, Kurukshetra. The survey method was used to collect the data. In total 184 questionnaires were distributed, out of which 141 filled in questionnaires were received back with 76.63 percent response rate. The survey was conducted during November 2017. Statistical Package for Social Science (SPSS) was used for data analysis and then data was imported into Microsoft© Excel 2013 to ensure the validity and accuracy and to present the data through tables and graphs. The measure of internal consistency, Cronbach's alpha was used to check the consistency and reliability of the questionnaire by using SPSS© version 20.0 and the alpha coefficient found was 0.739, which suggested that the items in questionnaire have relatively high internal consistency. Earlier studies in the existing literature confirm that reliability coefficient of .70 or higher is considered "acceptable" in most of the social science research situations.

5.0 Data analysis and discussion

5.1 Age and Gender wise distribution

Table 1 shows the gender and age wise distributions of PG students under study, out of 141 students, 66 (46.80 percent) were male and 75 (53.20 percent) were female. Majority of the students i.e. 74 (52.48 percent) were below 22 years of age and 66 (46.80 percent) were between the age of 22-25 years.

Table 1: Age and Gender wise distribution

Age Group	Gender		Total
	Male	**Female**	
Below 22	33	41	74
22-25	32	34	66
26-29	1	0	1
Total	66	75	141

5.2 Duration of time having mobile devices

Since how long the students are having a mobile device, highlights the acquaintance with mobile technology. Table 2 shows that a major part of the students i.e. 80 (56.74 percent) have mobile devices since more than 4 years while 27.66 percent students have since last 3 to 4 years and 13.48 percent since last 1-2 years. Only 2.13 percent (in total) students are such who started using mobile device less than a year ago.

Table 2: Duration of Time having Mobile Device

Time	Respondents (N)	Percentage
Less than 1 Year	3	2.13
1 - 2 Years	19	13.48
3 - 4 Years	39	27.66
More than 4 Years	80	56.74
Total	141	100.00

Table 3: Operating System Used

Operating Systems	Respondents (N)	Percentage
Android	115	81.56
Apple iOS	9	6.38
Windows	7	4.96
Symbian	5	3.55
Nokia Asha	3	2.13
Black Berry	1	0.71
Nokia X	1	0.71
Total	141	100

5.3 Operating system use

Android is most widely used the operating system (OS) in mobile devices around the world and this fact is clearly proved by the present study as shown in Table 3 that majority of the students (81.59 percent) are using Android OS. Apple iOS with 6.38 percent and Windows with 4.96 percent users got the 2nd and 3rd order. Other operating systems used by the students are Symbian (3.55 percent), Nokia Asha (2.13 percent), Black Berry and Nokia X with 0.71 percent each.

Table 4: Network Connection Used

Network	Respondents (N)	Percentage
GSM	77	54.61
CDMA	4	2.84
WCDMA (3G)	24	17.02
Wi-Fi	36	25.53
Total	141	100

5.4 Network connection used

Global system for mobile communication (GSM) is very popular and widely used digital mobile system around the world for information access and communication rather than the other systems like wideband code division multiple access (WCDMA) and Wi-Fi. Table 4 shows that GSM is the most used network connection by 54.61 percent students for information access, Wi-Fi by 25.53 percent and WCDMA or 3G by 17.02 percent. CDMA network is used by only 2.84 percent student for the said purpose.

Table 5: Time spent on Mobile Device for Information Searching

Time	Respondents (N)	Percentage
< one hour	31	21.99
1 -2 hours	52	36.88
3 - 4 hours	33	23.40
5 - 6 hours	15	10.64
> 6 hours	10	7.09
Total	141	100

5.5 Time spend on information searching

More time spent on a mobile device means more information to be accessed or searched. The results of present study shows that 36.88 percent students spend 1-2 hours daily on mobile for information searching, 23.40 percent students spend 3-4 hours, 21.99 percent spend less than an hour, 10.64 percent students spend 5-6 hours a day and remaining 7.09 percent students spend more than 6 hours a day in using mobile for information searching through mobile (Table 5).

5.6 Use of mobile devices in the availability of PCs/Laptops

Students were asked whether they were using the mobile devices when PCs or laptops are available; table 6 shows that 45.39 percent students are using mobile device 'often', 22.70 students 'very often', 14.18 percent and 7.09 percent are using 'seldom' and 'very seldom' respectively even when PC and laptop is available. While 10.64 percent students are such who never use the mobile device when PC or a laptop is available.

Table 6: Use of Mobile Devices in Availability of PCs/Laptops

Frequency	Respondents (N)	Percentage
Very often	32	22.70
often	64	45.39
seldom	20	14.18
very seldom	10	7.09
never	15	10.64
Total	141	100

Table 7: Information Searching through Mobile Devices (Multiple answers permitted)

Information	Respondents (N)	Percentage
Read newspaper	108	76.60
Online Shopping	95	67.38
Take Pictures/Video	81	57.45
Download E-books/Research articles/Reports	80	56.74
Use online maps or GPS	70	49.65
Check Weather	57	40.43
Health/Wellness/Beauty Information	56	39.72
Buying Tickets	39	27.66
Stock Price/Market Information	39	27.66
Pay Bills	34	24.11
Research/Book travel	40	28.37
Organization Tools	24	17.02

5.7 Information searching through mobile devices

The mobile device has versatile functionality as one can search or browse a lot of information by using them. Table 7 in this context shows that PG students search various types of information through mobile, as reading newspaper (76.60 percent), online shopping (67.38 percent), take picture and videos (57.45 percent), download E-books/research articles/reports (56.74 percent), use online maps and GPS (49.65 percent), check weather (40.43 percent) and health/wellness/beauty information (39.72 percent), pay bills (24.11 percent) and organization tools (17.02 percent).

5.8 Information activities are done on mobile devices

Table 8 shows that PG students are using their mobile devices for number of information activities such as instant messaging (81.56 percent), listening audio and music (78.01 percent), social networking (73.76 percent), E-mails (72.34 percent), text messaging (70.92 percent), dictionaries and online encyclopaedias (63.83 percent), web-based music and videos /video websites (58.16 percent), playing games and puzzles (53.19 percent) and office application such as word, excel & pdf (33.33 percent). Some other important and latest information activities such as wikis and blogs, voice over internet protocol and the online virtual world are being used by least number of students i.e. 17.02, 13.48 and 4.96 percent respectively. However, the University library website is being used by the minimal portion (20.57 percent) of the students.

Table 8: Information Activities did on Mobile Device (Multiple answers permitted)

Information Activities	Respondents (N)	Percentage
Social networking Apps or websites	104	73.76
E-Mail	102	72.34
Listen to Audio or Music	110	78.01
Text messaging	100	70.92
Instant Messaging (IM)	115	81.56
Dictionaries, online encyclopaedias	90	63.83
Watch Videos, Video websites (YouTube, etc.)	82	58.16
Download Web-based Music or Videos	82	58.16
Playing games/puzzles	75	53.19
Video calling, Webcasts/Podcasts	45	31.91
Office Applications (Word, Excel, PDF, etc.)	47	33.33
Simulation or educational Games/Apps	39	27.66
Use University Library website	29	20.57
Wikis, Blogs, etc.	24	17.02
Voice over Internet Protocol (VoIP) Skype, etc.	19	13.48
Online Virtual World (Second Life, Fonterra, etc.)	7	4.96

5.9 Social media application used on mobile

Table 9 shows the use of social media applications on mobile devices. WhatsApp and Facebook are being used by 85.82 and 82.27 percent students respectively. Other social media application being used are Google+ (56.74 percent), WeChat (29.08 percent), Skype (26.24 percent), LINE (24.82 percent) and Twitter (17.02 percent). Least number of students use Instagram (15.60 percent), Hangouts (14.89 percent), LinkedIn (13.48 percent), Picasa (11.35 percent), MySpace (4.96 percent) and One Drive (1.42 percent).

Table 9: Social Apps Used on Mobile Device (Multiple answers permitted)

Social Apps	Respondents (N)	Percentage
WhatsApp	121	85.82
Facebook	116	82.27
Google+	80	56.74
WeChat	41	29.08
Skype	37	26.24

LINE	35	24.82
Twitter	24	17.02
Instagram	22	15.60
Hangouts	21	14.89
LinkedIn	19	13.48
Picasa	16	11.35
MySpace	7	4.96
One Drive	2	1.42

Table 10: Use of Educational Features on Mobile Devices (Multiple answers permitted)

Educational Features	Respondents (N)	Percentage
PDF Files	119	84.40
PowerPoint	59	41.84
Office Word	62	43.97
Educational Apps	60	42.55
Excel Spreadsheet	36	25.53
Reminder	28	19.86
HTML Files	35	24.82
Work planner or To-Do List	19	13.48

5.10 Educational features used in mobile

PG students are also using myriad education features on mobile devices. Table 10 shows that PDF file was are being used by 84.40 percent students. Office Word, educational apps, PowerPoint and Excel Spreadsheet are the educational features which are frequently being used by 43.97, 42.55, 41.84 and 25.53 percent students respectively. Other educational features used by the least number of students are HTML files (24.82 percent), reminder (19.86 percent) and work planner or To-Do list were (13.48 percent).
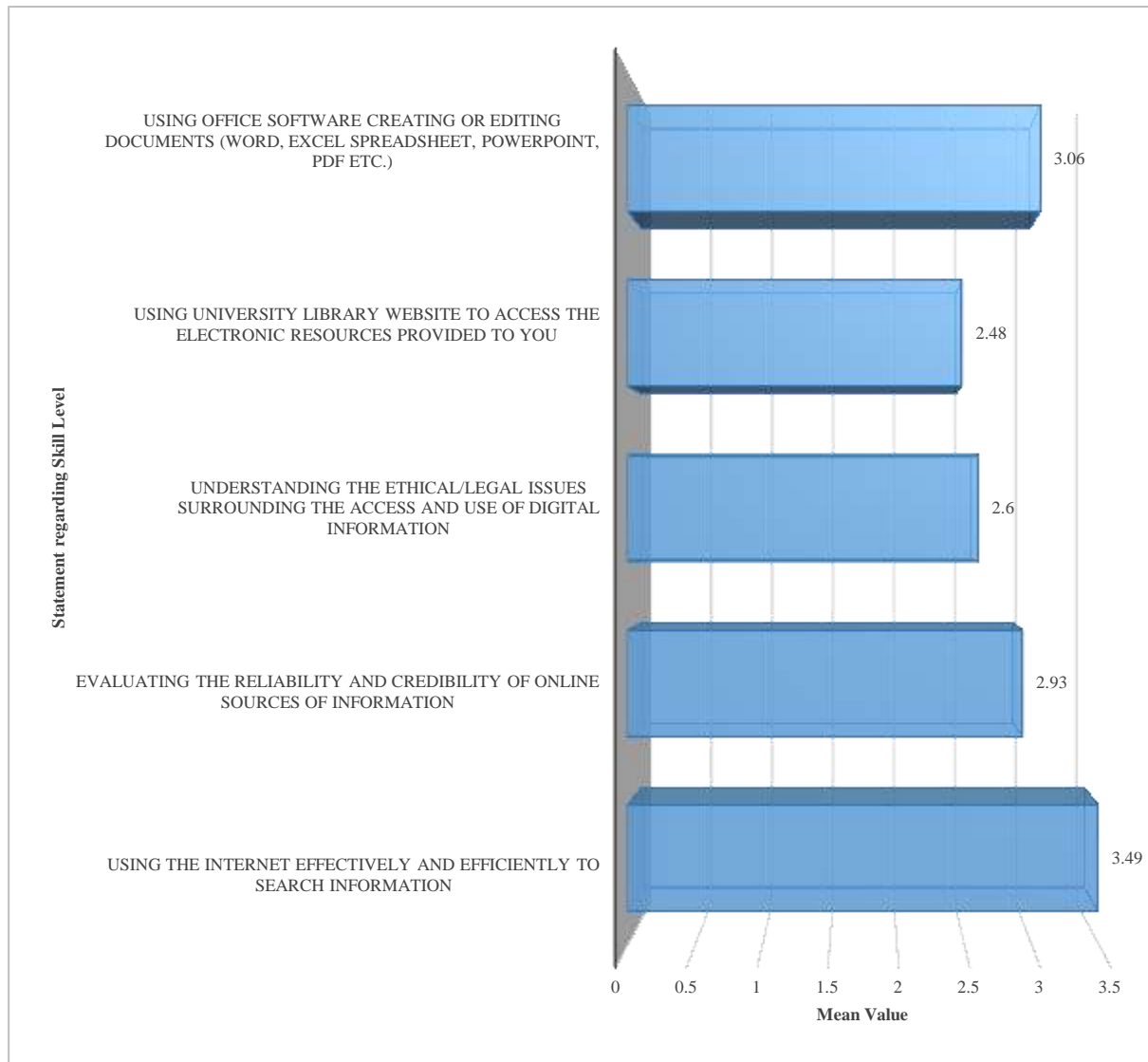
Table 11: Main Purpose of Using Mobile Device

Purpose	Respondents (N)	Percentage
Communication	91	64.54
Informational	22	15.60
Educational	19	13.48
Entertainment	9	6.38
Total	141	100

5.11 The main purpose of using mobile devices

In the present study, the main purpose of using mobile devices has been divided into four categories i.e. communication, informational, educational and entertainment. Table 11 shows that 64.57 percent of the total students are using mobile devices for communication purposes, 15.60 percent are using for informational purposes and 13.48 percent are using for educational purposes. Remaining least number of students i.e. 6.38 percent are using mobile devices only for entertainment purposes.

Deepak Kumar, Jyoti Devi and Dr. Naresh Kumar- Use of mobile technology by social sciences PG students of Kurukshetra University, Kurukshetra, Haryana: A survey

Figure 1: Skill Level for Different tasks by using Mobile Device

5.12 The skill level of mobile use

The skill level of the students for different tasks by using mobile devices was measured on 5 points Likert scale and mean values were calculated as shown in figure 1. The skill level was found the highest regarding "using the internet effectively and efficiently to search information" (M=3.49) and "using office software creating of editing documents" (M=3.06). The skill level of evaluating the reliability and credibility of online sources of information has been found good with a mean value of 2.93. However, the skill level of students was found satisfactory in the context of understanding the ethical issues surrounding the access and use of digital sources (M=2.6) and using university library website to access the electronic resources provided to the students with mean value 2.48.

## 5.13 Reasons/problems which prevent the use of mobile devices

Table 12 presents the reasons/problems which prevent the students from using mobile devices for information searching and it was found that slow network connection is the main problem faced by 61.70 percent students. Other reasons which prevent the use of mobile devices are the cost of data services (53.19 percent), inadequate battery life (36.17 percent), limited access to network and cost of mobile devices (30.50 percent each), Security/privacy issues (28.37 percent) and health related issues (24.82 percent). Other problems which are being faced by the least number of students are device usability issues (16.31 percent), lack of useful applications

(15.60 percent) and penalty of other ways to access the internet (12.77 percent). Cost of the useful application was the minor problem faced by only 11.35 percent students.

Table 12: Reasons/problems which prevent the Use of Mobile Device for Information Searching (Multiple answers permitted)

Reasons	Respondents (N)	Percentage
Network connection too slow	87	61.70
Cost of data service	75	53.19
Inadequate Battery life	51	36.17
Limited access to Network	43	30.50
Cost of Mobile Device	43	30.50
Concern about security/privacy problem of mobile technology	40	28.37
Concern about potential health problem of mobile technology	35	24.82
Plenty of other ways to access the internet	18	12.77
Device usability issues (Small Screen, Key Board, etc.)	23	16.31
Lack of application that is useful to me	22	15.60
Cost of application that is useful to me	16	11.35

Figure 2: Attitude towards statement regarding Mobile Technology
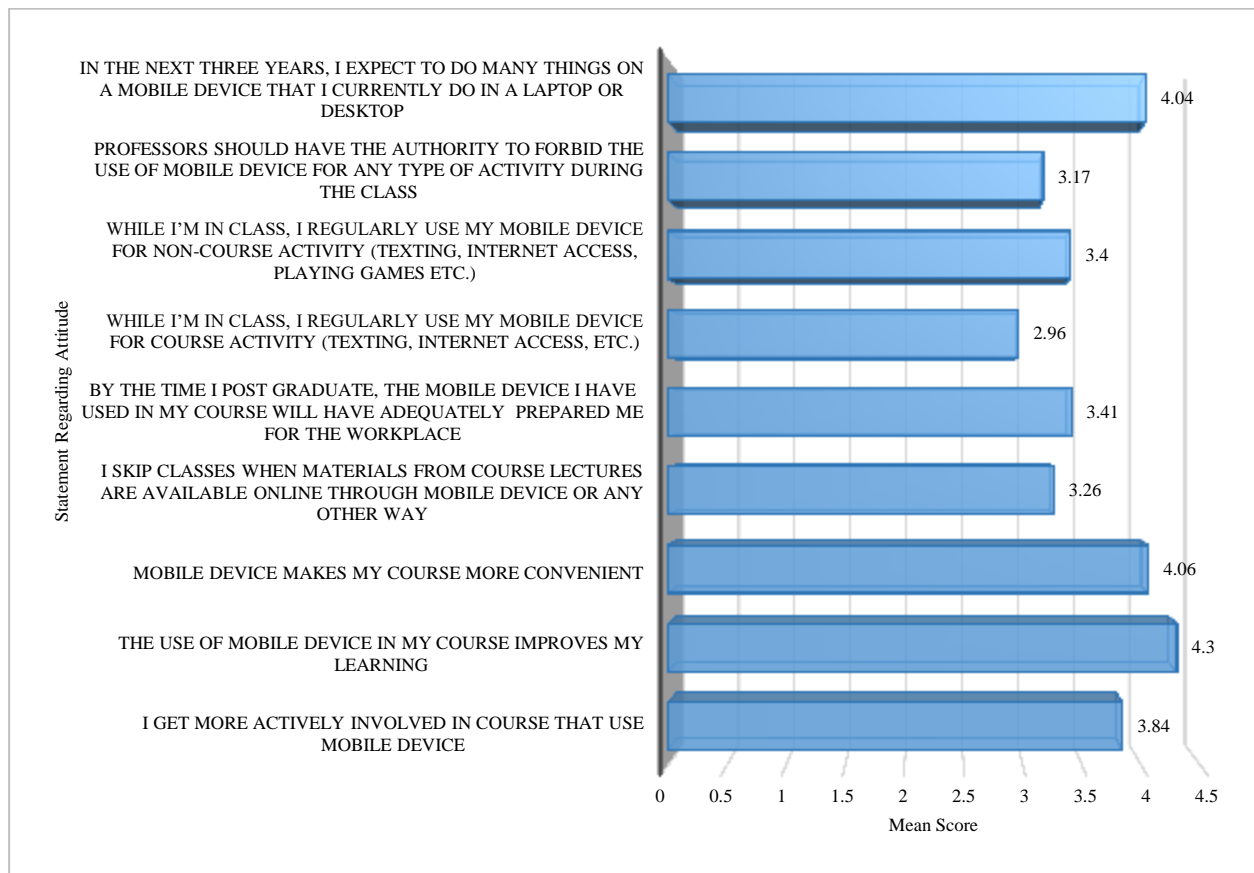
5.14 Attitude towards mobile technology

Students' attitude towards some statements regarding the use of mobile technology was recorded at 5-point scale i.e. Strongly Agree; Agree; Neutral; Disagree and Strongly Disagree as shown in figure 2 where a higher value of mean indicates positive attitude. The attitude has been found positive towards the statements such as 'the use of mobile device in course improves my learning' with mean value 4.3, 'mobile devices make my course more convenient' with mean value 4.06, 'in the next three years I expect to do many things on mobile which I am currently doing on laptop/PC' with mean value 4.04, and 'I get more actively involved in course that uses mobile devices' with mean value 3.84. The slightly negative attitude was found towards the statement such as 'professors should have the authority to forbid the use of mobile devices for any type of activity in class' with mean value 3.17 and 'I regularly use mobile devices in the classroom for course activity' with mean value 2.96. So the overall attitude of the PG students towards mobile technology was found positive.

6.0 Conclusion and suggestions

The PG students of social sciences of Kurukshetra University have a great passion for using mobile devices mainly for communicational purposes whether it is in the form of instant messaging or using as social media applications. There is a need to improve their skill which will enhance the use of mobile devices for educational purposes and getting adequate information by using their ultimate features. It has been found that PG students are slightly unaware regarding advantages of using mobile technology. In this context, it is suggested that the university can provide an exciting opportunity to students by organising information literacy programs, which will help the students in using their mobile devices as an educational and informational tool or media.

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