

# The Potential Use of Mobile Phone Technology for Knowledge Sharing among Academics in Institution of Higher Learning

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## ABSTRACT

*The potentials of mobile phone technology are huge and it has opened possibilities and avenues for enhancing knowledge sharing activities among academics in Institutions of Higher Learning (IHLs). However, it was found that there was lack of academic research on the use of mobile phone technologies for knowledge sharing purposes in IHLs. In IHLs, technologies of mobile phones such as cell phones, smart phones, and PDAs provided with interesting features like camera, video, memory, player of MP3, internet approach and finally, presence in a device, by allowing study anywhere, anytime. This paper aimed to understand academics' general attitudes towards the use of mobile phone technology in IHLs, to explore the academics perceived usefulness to use mobile phone technology in IHLs, to determine academics' perceived ease of use of mobile phone technology in IHLs, to understand academics behavioral intention to use mobile phone technology in IHLs, to identify how will mobile phone technologies change the work situation of academics, and to identify the possible services that, in their opinion, can improve mobile phone technology and knowledge sharing among academics in IHLs. The overall findings revealed that there were at least four factors could lead to the adoption of mobile phone technology among academics in an Institution of Higher Learning. These factors were: attitudes towards the use of mobile phone technology, perceived usefulness to use mobile phone technology, perceived ease of use of mobile phone technology, and behavioral intention to use mobile phone technology.*

## Keywords

*Mobile Phone Technology, Institutions of Higher Learning, Academics*

## 1.0 INTRODUCTION

In recent years, information technology (IT) usage in universities and colleges is broadly increasing for the purposes of enhancing the administration and teaching and learning efficiencies. As the population of campuses raises, so does the improvement of technologies. In Institutions of Higher Learning (IHLs), technologies of mobile phones such as cell phones, smart phones, PDAs and telephone provided with interesting features like camera, video, memory, player of MP3, internet approach and finally, presence in a device, by allowing study anywhere, anytime (Wilén-Daugenti, 2007).

Junior et al. (2008) defined mobile technologies as "mobile technologies are exactly what its name refers, i.e., portable technology that can be moved from one place to another without any loss". There are several advantages of mobile technologies. Few of them are the independence in learning at anywhere and anytime, faster and convenient communication as well as rapid access to variety of different sources. Moreover, the ability to conduct impossible experiments in authentic way is truly pleasant. It is safe to experiment with them because the error will only affect in simulation environment (Smidts et al., 2008).

According to Naismith et al. (2005), "mobile technologies are becoming more embedded, ubiquitous and networked, with enhanced capabilities for rich social interactions, context awareness and internet connectivity" (p.6). Additionally, Anderson and Rainie (2008) concluded that the mobile phone technologies will be the most fundamental and compulsory connection device to the internet for everyone in 2020.

## 2.0 MOBILE PHONE TECHNOLOGIES IN IHLs

Academics find mobile phone technologies as their big savior when comes to managing the working tasks. Plenty of important features such as address books, devices of storage of file, cameras, recorder of video and internet added to the working flexibility in IHLs. Today's mobile phones are as influential as computers. According to Nokia (2007), "It's what computers have become". Its increase to ubiquity is explained as a "...stealthy but rapid shift from a telephony device towards a portable, personal media hub that enables an increasing range of personalized and customized communication, entertainment, relationship management and service functions. Its reach is pervasively global and trans-cultural, possibly more so than any other media form including the internet and World Wide Web" (Cameron, 2006).

Nowadays, it is impossible to resist mobile phone. Each and every aspects of life demand the importance of mobile device. As the international barriers are getting smaller due to globalization, the need of communication is inevitable. Consequently, mobile phone is becoming more and more compulsory and necessary to have. All walks of life celebrate the use of mobile phone technologies, so does the academics.

Undeniably, there are myriad of activities for both academics and students provided by mobile phone technologies such as; uploading and downloading of songs, movies and videos to cell phone, MP3 player, iPod, sending and receiving e-mails, instant messages (IMs), short text messages (SMS), transferring files, photos or other data , interactive games, searching for information or services on the web, making video calls, personal organizer (e.g. diary, address book), in-class surveys/questions, in-class media sharing, attendance monitor, distant privileges of library, peer locator, free or inexpensive VoIP phone as well as notification of the security.

Academics who have experienced dealing with mobile technologies in working possess several reasons to continue using them. Firstly, to be able to communicate with other people, to seek information, to take pictures and create clips and sharing with others is what most people have become used to (Smidts et al., 2008). The following studies have examined some of the activities of the mobile phone in the IHLs.

Corbeil and Valdes-Corbeil (2007) have explored mobile phone activities engaged in by academics and students in their study. According to their findings, these technologies can be applied in many activities such as: uploading and downloading songs/movies/video clips, sending and receiving e-mail, Instant Messages (IMs), Short Text Messages (SMS), transferring files, photos or

other data playing the interactive games, transferring photos or other data, downloading Podcasts of appropriate instructive material along with audio and video lectures, reading e-books, reconsidering coursework and getting ready in exams, showing their jobs and sharing plan results, providing visual, adding a microphone to their mobile to capture material for educational use, using an MP3 player to download and listen to Podcasts and audio lectures, and reconsidering the material of courses and studying for exams, audio books and, with some devices as well as the most widely used nowadays which is recording lectures.

Furthermore, findings from studies conducted by Whilst Kennedy et al. (2008a) and Kennedy et al. (2008b), mobile phone technologies allowed users to conduct 9 activities in Institutions of Higher learning as the following:

- To send pictures or movies to colleagues.
- To use mobile phone as MP3 player.
- To access information or services on the web.
- To make video calls.
- To take digital photos or movies.
- To send or receive email.
- To use mobile phone as a personal organizer (e.g. diary, address book).
- To send or receive SMS to colleagues.
- To call the colleagues or others.

Besides, according to studies done by Wilen-Daugenti and McKee (2008), mobile phone technologies could be used for many applications for academics and students in both inside and outside the IHLs as example field below;

- **In-Class Surveys/Questions:** Students may submit the answers to questions or surveys given by an academic through their mobile phones.
- **In-Class Media Sharing:** During lectures, students are able to share interesting pictures or videos to their friends by emailing the files to the lecture hall's projector.
- **Attendance Monitor:** An academic may demand students to do a virtual "roll call" by transmitting a message from their mobile phones.
- **Course Materials:** During lecture, an academic can directly send the course materials to students' phones.
- **Remote Library Privileges:** The private privileges of library are also granted to students who can use their mobile phones to search articles without need to use a proxy server
- **Peer Locator:** Based on network's accuracy, peers may be alerted when their contacts are close by the mobile phones.

- **Free or Inexpensive VoIP Calling:** Universities may offer cheaper international or local calls made within the campus for students who might really need to do so.
- **Position System:** By sharing information contextual about the user's actual place, mobile phone serves as a guide of virtual turn which assists the presence of students around the campus.
- **Notification of the Security / Emergency:** Depending on the user's location, a warning notice is sent immediately to every mobile phone via email and voicemail, by informing the best way to leave the campus or a particular building in case of emergency.
- **Practice Exercises for Study and Review:** students may be able to review the materials or quizzes created by the academics in anytime and anywhere.
- **Mobile Creation and Media Publication:** students could use their mobile phones to capture images or videos and share them with the entire world by uploading them directly into the Internet.
- **Social Learning in Mobile Network:** Facebook, Friendster, and other social networking tools allow users to share their life updates. Students get to interact with the members of a study group across the world.
- **Gaming and Simulations:** mobile phone is equipped with a feature to keep the academics and students in the games of simulation.
- **Use of Mobile Phone Technologies in the Classroom:** students can select answers out of multiple choice questions created by the academics in the classroom.

Moreover, a study carried out by Duke University (2005) has outlined the major categories of mobile devices employment by the academics as follows:

- **The Instrument of Broadcasting of Lesson Contents-** Mobile phone provides access to lessons content such as lectures, songs, historical speeches, conferences and meetings.
- **Tool of Classroom Recording** – mobile phone can be used as a tool to capture lectures, class discussions and feedbacks.
- **Tool of Supporting Study** – mobile phone allows academics for repetition of commercial and original audio content, such as music and audio books.
- **Transfer and File Storage** – mobile phone is able to transfer or backup all sorts of files.
- **Digital Portal:** Both academics and students may no longer depend on physical materials.
- **Flexible Location** – mobile phone provides accessing of digital materials at anywhere and anytime which also contributes to a decreased dependency of library.
- **Digital Recording** – mobile phone allows convenient digital recording of interviews, field notes, small group discussions and oral assignments.
- **Convenient Tool** – mobile phone makes students' engagement in class discussions, labs, field research, and independent plans much easier.
- **Improved Support for Personality Knowledge Preferences and Needs**

In addition, Duke University (2008) has widened their outlines as follows:

- **Text Messaging:** University may send text messages to students to notify them about examination dates for instance.
- **Flexible, Delivery of Mobile Content:** students are able to access classes by using their mobile phones in distance learning.

Subsequently, Abilene Christian University (2008) pointed out that mobile phone technologies possess many interesting benefits and have become a standard tool in IHLs. Some of the benefits are summarized as follows:

- **Digital Syllabus:** dynamic changes of an individual, the activities of a student or status are allowed
- **Clicker:** real-time dynamic class polling or free-form answers are allowed
- **Classroom Communicator:** an improved flexibility in classes' content and release is allowed
- **Document Reader:** an e-Book
- **Internet Communicator:** the aggregation of content on the sites of class is facilitated
- **Alert System:** a receiving automated information of courses
- **Notes Taker:** recording aggregation device for audio recordings is allowed
- **Location Reporter:** a college grounds map with active location is reported when needed
- **Attendance Tool:** dynamic comment about a user's position anywhere anytime is given
- **Business Purposes:** wireless communication for bill paying, ticket-buying and bookstore buying or any business related matters are enabled
- **Registrar's Office Extension:** easy course employment, communication with academic records, and dynamic scoring access are made easier

Besides, benefits proposed by Cisco (2008) of a mobile system solution for colleges and universities are as follows: a) easy and convenient communication between

academics and students, b) a study is developed beyond a class, by becoming more in collaboration, interactive and dynamic, c) both parties may seek new opportunities to connect resources and training, and d) academics can use context of a study based on interactive mode in managing the approach for students daily.

Additionally, by using mobile phone technologies, Lefoe and Olney (2007) and Lefoe et al. (2008) reconsidered academics' activities by in IHLs as follows: a) making interview with visiting speakers and return it back to the speaker for editing, d) audio comments, c) setting up mobile phone as database for others to use, d) recording interviews for re-evaluating of issues, e) collecting of thoughtful obviousness of the own teaching of academician to plan for future teaching, f) preparing and carrying the necessary articles needed, g) tutorial roles, h) easier sharing of information to students.

Apart from that, Nie (2006) pointed out the potential use of mobile technologies in IHLs as follows:

- **Recorder:** students may record their works, interviews, presentations and lectures.
- **Audio:** students get to listen to genuine audio materials such as interview, audio book, music, speech and vocabulary.
- **Multimedia:** students can access multimedia materials such as film, picture, snap, visual vocabulary etc.
- **Pre-class Resources:** academics can create pre-class listening resources containing academic news, review of papers and journal articles, week activities, comments on assignment, etc.
- **Podcasting:** allows students to share their own ideas with others.

Moreover, Jocelyn et al. (2008) condemned that mobile phone technologies possess many interesting benefits in IHLs as follows: a) academics can access the internet in any time and at any where, b) PDAs enable flexible and timely access to e-learning resources which would lead to empowerment and effective learning, c) academics are enabled to access training resources any time, anywhere, d) academics may hold question and answer sessions via conferences, seminars, workshops, and e) both academics and students can get a real opportunity to make a link between field and college.

Finally, BlackBerry (2006) concluded that there are potential benefits of providing mobile access to few applications used by the college's different departments such as: a) academics may stay in touch and schedule appointments on-the-road, b) healthy data security and remote device management, c) very useful for emergency communications during university trips and d) remote network maintenance via web interface.

### 3.0 MOBILE PHONE TECHNOLOGY AND KNOWLEDGE SHARING AMONG ACADEMICS IN IHLs

The literature evidenced that mobile phone technologies playing important role in Institutions of Higher Learning. Mobile technologies have opened the door to possibilities and avenues for knowledge sharing by providing a new platform via wireless communication or other ICT applications. Mobile technology may enhance academics' functionalities in Institutions of Higher Learning by supporting Externalization and Combination activities. Subsequently, mobile phone technology and knowledge sharing among academics in Institutions of Higher Learning could be demonstrated as follows:

- Academics can send and receive short text messages (SMS) from each other. The great advantage of using SMS is that it offers just-in-time information
- Academics can send and receive instant messages (IMs) from each other. Mobile phone offers a way to send instant messages at a much lower cost than traditional SMS messaging. Messages are sent and received by the use of the Internet means that the cost of messages depends only on the quantity of data sent
- Academics can send and receive e-mail from each other. Mobile phone offers a way to send to receive emails E-mails are sent and received by the use of the Internet means that the cost of mail depends only on the quantity of data sent
- Academics can share administrative information with colleague. Mobile phone technologies enhance communications among academics on campus. Through mobile devices, academics can receive administrative information such as announcements and urgent messages from faculty or university
- Academics can share and listen to Podcasts/audio books with colleague
- Academics can share downloads and view streaming movies/video clips
- Mobile phone technology can be used as peer locators, alerting academics when their contacts are nearby.
- Mobile phone technology represents a classroom communicator that enables increased flexibility in course content and delivery among academics. Academics can create pre-class listening resources containing academic news, review of papers and journal articles, week activities, comments on assignment, etc
- Academics can create memos which can be sent to colleague from mobile or saved onto his/her office computer
- Academics have ability to read work related documents via PDF, HTML, and Microsoft

Office files

- Academics can record conferences, seminars, workshops, symposiums, interviews, lectures and sent it to his/her colleague through mobile device
- Academics can share e-books, journals, or other academic materials
- Academics can publish e-books and e-papers
- University can set up mobile phone technologies as database for academics to download documents, applications and university roles
- Academics can share with colleagues research findings
- Academics can use the micro web browser for conducting quick research online
- Academics can stay connected to social networking sites in mobile environment
- Academics can use a mobile phone technology to send pictures or movies to each other.

Mobile technology provides an opportunity for the new generation of people with better communication and activities without taking into account the place and time. This section has outlined the potential use of mobile phone technologies among academics in IHLs. The benefits of mobile phone technologies have been broadly discussed in general. Additionally, this section has evidenced most studies related to the benefits of mobile phones usage among students. Ultimately, this section shows that there are a few studies to examine the benefits of the mobile phone technologies among academics.

Despite the advantages of mobile phone technology are clear, only a small number of Institutions of Higher Learning are equipped with integrated mobile phone technologies in their environments (Joan & John, 2007; Kim et al., 2006; New Media Consortium, 2007). Figueira (2007) pointed that "as of August 2007, however, there are no universities or degree awarding programs with a website designed for downloading on a mobile device" (p.1). Sufficient technological means to access mobile devices are not widely used by the academics in Institutions of Higher Learning (Junior et al., 2008). In 2007, Peters conducted a research to 29 manufacturers of mobile devices, businesses and education suppliers and found that mobile phone technologies are in general used in some commercial organizations, but found limited adoption for Institutions of higher learning use.

The purpose of this study is to understand academics' general attitudes towards the use of mobile phone technology in IHLs, to explore the academics perceived usefulness to use mobile phone technology in IHLs, to determine academics' perceived ease of use of mobile phone technology in IHLs, to understand academics behavioral intention to use mobile phone technology in IHLs, to identify how will mobile phone technologies change the work situation of academics, and to identify

the possible services that, in their opinion, can improve mobile phone technology and knowledge sharing among academics in IHLs.

#### 4.0 RESEARCH METHODOLOGY

In this study, primary and secondary data were collected. Questionnaires were distributed to the academic staff at University Utara Malaysia (UUM). UUM is a public Institution of Higher Learning located in the north of Malaysia. The academics who came from Public Institution of Higher Learning (PIHL) are the sample of this study. Academics' designation was different in terms of: Tutor, Lecturer, Senior Lecturer, Associate Professor, and Professor. 350 questionnaires were distributed to academics at UUM. The sampling was based on convenience and 154 participants successfully answered with response rate of 44 %. The analysis of the survey results is presented based on a valid response of 154 academics of University Utara Malaysia.

Data collection for this study was undertaken during the month of May 2009. In gathering information pertaining to the study; a questionnaire was used as the main instrument for data collection in this study. a questionnaire was prepared divided into seven sections as follows: Section 1 was not containing any personally identifiable questions. The demographic and background variables used in this study are gender, status, age, designation, availability of devices, period of time in using device, academics opinion about devices price, academics opinion about devices, usefulness and effectiveness role in the work, connecting to internet through device, and academic's preferences for mobile phone functions. This section was adapted from Avenoglu (2005) and Trifonova (2006). Section 2: contains questions that targeted at attitudes towards the use of mobile phone technology in Institutions of Higher Learning. The respondents were given a list of six items to assess their opinions and attitudes to use mobile phone technology. Questions were adapted from Kurnia et al. (2008) and Avenoglu (2005). Section 3: contains questions concerning the perceived usefulness to use mobile phone technology. Five items were used to measure the respondents' perception toward the usefulness to use mobile phone technology. Questions were adapted from Kurnia et al. (2008) and Trifonova (2006). Section 4: contains questions that targeted at the perceived ease of use of mobile phone technology. Three items were used to measure the respondents' perception that used mobile phone technology and found it easy to use. Questions were adapted from Kurnia et al. (2008) and Trifonova (2006). Section 5: contains questions about behavioral intention to use mobile phone technology in Institutions of Higher Learning. Four items were used to measure behavioral intention of the respondents towards using of mobile phone technology. Questions were adapted from Kurnia et al. (2008). Section 6: contains questions that are related to how can mobile phone technology change the work situation of

academics in Institutions of Higher Learning. Ten items were used to measure the respondent's opinions about how can mobile phone technology increases the flexibility and the ability to work on the move. Questions were adapted from Dye et al. (2003). Section 7: contains statements that targeted to mobile phone technology and knowledge sharing among academics in Institutions of Higher Learning. The respondents were given a list of eighteen statements to assess their opinions and potential use of mobile phone technology for knowledge sharing among academics in Institution of Higher Learning. All Questions in this section were chosen from the interview with academics. A five point Likert scale type was used in this study and the academics were required to state the extent to which statements in their point of view were important or not important for them as academics. The Scale was (SD= Strongly Disagree, D = Disagree, N = Neutral, A = Agree, and SA = Strongly Agree).

In this study, the questionnaire was pilot tested with 30 UUM academic staff. The table 1 shows the Cronbach's alpha coefficient for section 2, section 3, section 4, section 5, section 6 and section 7.

Table 1: Reliability Cronbach's Alpha ( $\alpha$ ) for Questionnaire's Six Sections

The Item	Cronbach's Alpha ( $\alpha$ )	Reliability Results
Section 2	0.891	Good
Section 3	0.840	Good
Section 4	0.820	Good
Section 5	0.805	Good
Section 6	0.894	Good
Section 7	0.883	Good

## 5.0 DATA ANALYSIS AND RESULTS

### 5.1 Respondent's Profile and Background Information

Based on the demographics and other personal background information obtained, out of 154 respondents 61.0 % were females. The most of the respondents were married 74 %. 36.4 % of the respondents were 41 to 50 years old and 30.5 % were 31 to 40 years old. Most of the respondents were Lecturers position 39.0 %, following by Senior Lecturers 26.0 %, Tutor 18.2 %, and Associate Professor 16.9 %. Table 2 gives respondents' demographic profile:

Table 2: Respondents' Demographic Profile

Respondents' Profile	Classification	Frequency	%
Gender	Male	60	39
	Female	94	61
Status	Married	114	74

	Unmarried	40	26
Age	20-30	33	21.4
	31-40	47	30.5
	41-50	56	36.4
	Above 50	18	11.7
Designation	Tutor	28	18.2
	Lecturer	60	39.0
	Senior Lecturer	40	26.0
	Associate Professor	26	16.9

### 5.1.2 Availability of Devices

The study (refer to figure 1) shows that 98 % of academics had Cell phone, 36 % PDA, 10 % Smart phone, and 2 % Pocket PC. The study also shows that there were more that 40 % of academics had more that one device, for instance, 33 % of academics had Cell phone and PDA device, 9 % of academics had Cell phone and Smart phone, and 3 % of academics had Cell phone, Smart phone and PDA in one time.

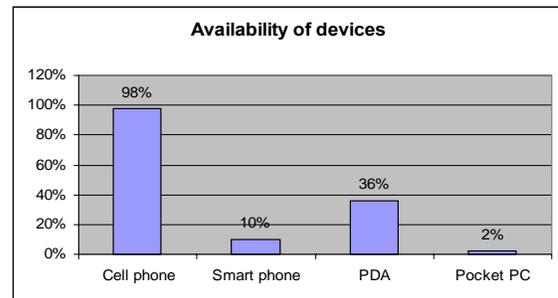


Figure 1: Respondents' Availability of Devices

### 5.1.3 Period in Using Device

The study (refer to figure 2) shows that 50.6 % of academics had Cell phone for more than 8 years, 30 % had Cell phone between 6 to 8 years, 13.6 % had Cell phone between 3 to 5 years, and 0.6 % had Cell phone less than one year. As well, it shows that 2.6 % of academics had Smart phone between 3 to 5 years, 5.2 % had Smart phone between 1 to 2 years, 2.0 % of academics had Smart phone less than one year. In addition, it shows that 3.2. % of academics had PDA device between 6 to 8 years, 7.1 % of academics had PDA device between 3 to 5 years, 19.4 % had PDA device between 1 to 2 years, and 6.5 % of academics had PDA device less than one year. Finally, only three participants 2.0 % had Pocket PC between 1 to 2 years.

### 5.1.4 Opinion about the Price

In view of academic's opinion about prices of devices, the general opinion was that Cell phones had reasonable

price, were 77.8 % preferred that Cell phone had normal price and 22.8 % refer that Cell phone had low price. In addition, Smart phone, PDAs, and Pocket PC were considered costly price (for Smart phone 58.44 %, for PDAs 61.04 %, and for Pocket PC 64.94 %). Furthermore, a few academics had no opinion on the prices for smart phones, PDAs, and Pocket PC (for Smart phones 4 %, PDAs 5.19 %, and Pocket PC 2.60 %). Figure 3 and shows the academics opinion about devices prices.

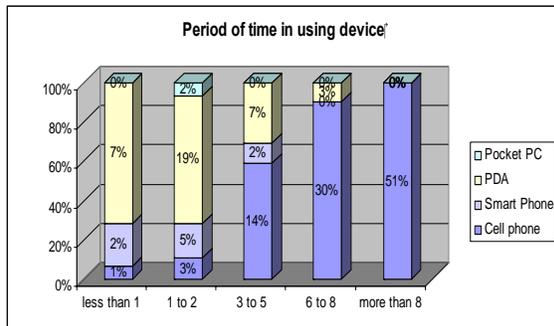


Figure 2: Respondents' Period in Using Device

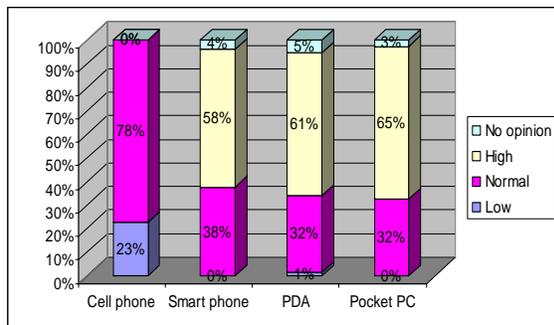


Figure 3: Respondents' Opinion about Devices Prices

### 5.1.5 The Usefulness and Effectiveness Role of Mobile Phone Technologies in the Work

The study (refer to figure 4) shows that the majority of respondents 97.4 % considered that mobile devices can play a useful and effective role in their daily work. While 0.6 % considered that mobile devices cannot play a useful and effective role in their daily work, and only 1.9 % were not sure about the usefulness and effectiveness of mobile device role in their work. These results indicate that academics had positive opinions regarding using mobile phone technologies in their work, and these results can support researcher's opinion about the importance and usefulness of this study in IHLs environment, and to stand up to the factors that could help passing mobile phone technologies in IHLs.

### 5.1.6 Connecting to Internet through Mobile Phone Technologies

Figure 5 shows that the majority of respondents 75.3 % were connecting to internet through mobile phone technologies, and only 24.7 % were not connecting to internet through mobile phone technologies. As evidenced by various studies mentioned above, mobile phone technologies give opportunity to academics to connect to internet and to the world any time anywhere. In addition, mobile phone technologies could able to increase the range of personalized and customized communication, entertainment, relationship management and service functions.

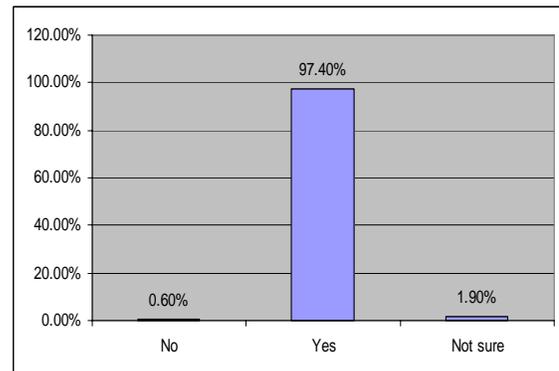


Figure 4: Academics' Opinion the Usefulness and Effectiveness Role of Mobile Phone Technologies

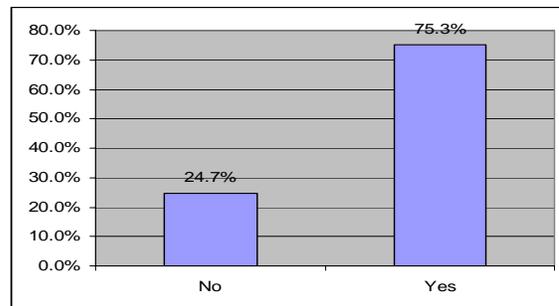


Figure 5: Academics' Opinions about Connecting to Internet through Mobile Phone Technologies

### 5.1.7 Academic's Preferences of Mobile Phone Functions

The academics in this section were given a list of fifteen mobile phone functions and they had to choose one or more of these functions. The results are shown in table 3. Today mobile phone technologies provide a wide range of services. Among these services, a researcher can demonstrate; browsing the Web, MMS, games, alarm/reminder, calling, listening to music, voice recorder, chatting, calendar, camera, phone book, SMS, sending e-mail, dictionary, audio file storage.

According to the findings, 100 % of respondents preferred that the function of calling was the most

important function, where 98 % preferred that the second important function was SMS. In addition, the findings show that the respondents who choose calendar were 79 %, camera 77 %, alarm/reminder 75 %, phone book 70 %, listening to music 61 %, browsing the Web 53 %, games and sending e-mail 42 %, MMS 41 %, voice recorder 38%, dictionary and audio file storage 29%, and chatting 21 %.

Table 3: Academic's Preference of Mobile Phone Functions

No.	Mobile Phone Functions	%
1	Calling	100%
2	SMS	98%
3	Calendar	79%
4	Camera	77%
5	Alarm/reminder	75%
6	Phone book	70%
7	Listening to music	61%
8	Browsing the Web	53%
9	Games	42%
10	Sending e-mail	42%
11	MMS	41%
12	Voice recorder	38%
13	Dictionary	29%
14	Audio file storage	29%
15	Chatting	21%

## 5.2 Attitudes towards the Use of Mobile Phone Technology in IHLs

The respondents were given a list of six items to assess their opinions and attitudes toward using mobile phone technology. A big majority of the respondents 92.9 % were 'strongly agree' or 'agree' that "using mobile phone technology is/might be an excellent idea" (see table 4). When they asked to indicate their opinion on the statement that "using mobile phone technology is/might be a pleasant experience", 81.2 % of the respondents were "strongly agree" or "agree" to this stance. Although a majority of the respondents were 87.6 % "strongly agree" or "agree" that "using mobile phone technology is/might be beneficial to me". When the respondents were asked to indicate the degree that "using mobile phone technology increases knowledge in their field", 50.7 % of the respondents were "strongly agree" or "agree" to this stance, while 33.1 % of the respondents were "neutral" to this stance, and 16.2 % were "disagree" with this viewpoint. This fact does not provide any clear majority opinion on this attitude. In addition, when the respondents were asked to indicate the degree that "using mobile phone technology increases their motivation towards work", 65.0 % of the respondents were "strongly agree" or "agree" to this attitude, while 24.7 % of the respondents were "neutral" to this attitude, and 10.4 % were "strongly disagree" "disagree" with this point of view. Finally, a big majority of the respondents were 91.6 % "strongly agree" or "agree" that "using mobile phone technology increases my communication with colleagues", while 8.4 % of the respondents were "neutral" to this attitude.

Overall, the findings pointed out that there is a highly positive attitude towards the use of mobile phone technology in Institutions of Higher learning (average response of 4.165 for the six items in this section).

Table 4: Academic's Attitudes towards the Use of Mobile Phone Technology

Attitudes	Number of responses (%)				
	SD	D	N	A	SA
Using Mobile Phone Technology is/might be an excellent idea.	0 (0.0 %)	2 (1.3)	9 (5.8)	66 (42.9)	77 (50)
Using Mobile Phone Technology is/might be a pleasant experience.	0 (0.0 %)	0 (0.0 %)	29 (18.8)	64 (41.6)	61 (39.6)
Using Mobile Phone Technology is/might be beneficial to me.	0 (0.0 %)	2 (1.3)	17 (11.0)	57 (37.0)	78 (50.6)
Using mobile phone technology increases my knowledge in my field	0 (0.0 %)	25 (16.2)	51 (33.1)	34 (22.1)	44 (28.6)
Using mobile phone technology increases my motivation towards work.	2 (1.3)	14 (9.1)	38 (24.7)	48 (31.2)	52 (33.8)
Using mobile phone technology increases my communication with colleagues.	0 (0.0 %)	0 (0.0 %)	13 (8.4)	52 (33.8)	89 (57.8)

## 5.3 Perceived Usefulness to Use Mobile Phone Technology in Institutions of Higher Learning

The respondents were given a list of five items to assess their opinions about the perceived usefulness to use mobile phone technology in Institutions of Higher Learning. Based on (Table 5) a majority of the respondents were 82.1 % "strongly agree" or "agree" that "using mobile phone technology can improve their efficiency in their daily work". When they asked to point out their opinion on the statement that "using mobile phone technology can save me a lot of time in general", 86.7 % of the respondents were "strongly agree" or "agree" to this stance. On average, a majority of the respondents were 82.5 % "strongly agree" or "agree" that "using mobile phone technology can enhance their effectiveness in carrying out their daily work". When the

respondents were asked to point to the level that "using mobile phone technology enables their to do their work conveniently", 71.5 % of the respondents were "strongly agree" or "agree" to this stance, while 26.0 % of the respondents were 'neutral' with this viewpoint. In addition, when the respondents were asked to indicate the degree of "using mobile phone technology can increase their productivity", 54.6 % of the respondents were "strongly agree" or "agree" to this attitude, while 31.8 % of the respondents were "neutral" to this attitude, and 13.6 % "strongly disagree" "disagree" with this point of view. This fact does not provide any clear majority opinion on this perceived usefulness.

Generally, the findings pointed out that there is a highly positive perceived usefulness to use mobile phone technology in Institutions of Higher leaning with the average response of 4.016 for the five items in this section.

#### 5.4 Perceived Ease of Use Mobile Phone Technology in Institutions of Higher Leaning

The respondents were given a list of three items to review their opinions about the perceived ease of using mobile phone technology in Institutions of Higher Leaning. Based on (Table 6), a big majority of the respondents were 93.5 % "strongly agree" or "agree" that "mobile phone technology is/might be easy to use". When they asked to address their opinion on the statement that "it is/might be easy to become skillful at using mobile phone technology", 87.7 % of the respondents were 'strongly agree' or "agree" to this stance. Furthermore, a majority of the respondents were 83.2 % "strongly agree" or "agree" that "mobile phone technology is /might be user friendly".

Table 5: Academics' Perceived Usefulness to Use Mobile Phone Technology (Percent. / Freq.)

Perceived Usefulness	Number of responses (%)				
	SD	D	N	A	SA
Using Mobile Phone Technology can improve my efficiency in my daily work.	1 (0.6)	1 (0.6)	24 (14.6)	71 (46.1)	57 (37.0)
Using Mobile Phone Technology can save me a lot of time in general.	1 (0.6)	6 (3.9)	15 (9.7)	67 (44.5)	65 (42.2)
Using Mobile Phone Technology can enhance my effectiveness in carrying out my daily	1 (0.6)	9 (5.8)	17 (11.0)	76 (49.4)	51 (33.1)

work.					
Using Mobile Phone Technology enables me to do my work conveniently.	1 (0.6)	3 (1.9)	40 (26.0)	52 (33.8)	58 (37.7)
Using Mobile Phone Technology can increase my productivity.	9 (5.8)	12 (7.8)	49 (31.8)	56 (36.4)	28 (18.2)

Overall, the findings pointed out that there is a highly positive perceived ease of using mobile phone technology in Institutions of Higher Leaning with the average response of 4.016 for the three items in this section. Figure 5 shows the perceived ease of using mobile phone technology in Institutions of Higher Leaning.

Table 6: Academics' Perceived Ease of Using Mobile Phone Technology (Percent. / Freq.)

Perceived Ease of Use	Number of responses (%)				
	SD	D	N	A	SA
Mobile Phone Technology is/might be easy to use.	0 (0.0)	2 (1.3)	8 (5.2)	80 (51.9)	64 (41.6)
It is/might be easy to become skillful at using Mobile Phone Technology	0 (0.0)	4 (2.6)	15 (9.7)	77 (50.0)	58 (37.7)
Mobile Phone Technology is /might be user friendly.	0 (0.0)	0 (0.0)	26 (16.9)	68 (44.2)	60 (39.0)

#### 5.5 Behavioral Intention to Use Mobile Phone Technology in Institutions of Higher

The respondents were given a list of four items to review their opinions about their behavioral intention to use mobile phone technology in Institutions of Higher Leaning. The findings were presented in Table 7 show that a majority of the respondents were 81.2 % "strongly agree" or "agree" that "they intend to use mobile internet when the service becomes widely available", while 16.9 % of the respondents were "neutral" to this statement. When they asked to address their view on the statement that "whenever possible, I intend to use mobile Internet", 68.2 % of the respondents were "strongly agree" or "agree" to this stance, while 21.4 % of the

respondents were ‘neutral’ to this statement and 10.4 % of the respondents were "disagree" to this statement.

Furthermore, when they asked to show their view on the statement that "I intend to use mobile Internet regardless of the price", 39 % of the respondents were ‘strongly agree’ or ‘agree’ to this stance, while 29.2 % of the respondents were ‘neutral’ to this statement and 31.8 % of the respondents were "strongly disagree" or "disagree" to this statement. This fact does not provide any clear majority opinion in this section. Finally, 68.2 % of the respondents were ‘strongly agree’ or ‘agree’ to the statement that "I intend to use mobile Internet if it is inexpensive", while 24 % of the respondents were ‘neutral’ to this statement and 7.8 % of the respondents were "disagree" to this statement. Overall, the findings pointed out that there is a positive behavioral intention to use mobile phone technology in Institutions of Higher Learning with the average response of 3.867 for the four items in this section.

Table 7: Academics' Behavioral Intention to Use Mobile Phone Technology (Percent. / Freq.)

Behavioral intention	Number of responses (%)				
	SD	D	N	A	SA
I intend to use mobile Internet when the service becomes widely available.	0 (0.0)	3 (1.9)	26 (16.9)	38 (24.7)	87 (56.5)
Whenever possible, I intend to use mobile Internet	0 (0.0)	16 (10.4)	33 (21.4)	46 (29.9)	59 (38.3)
I intend to use mobile Internet regardless of the price.	17 (11.0)	32 (20.8)	45 (29.2)	36 (23.4)	24 (15.6)
I intend to use mobile Internet if it is inexpensive	0 (0.0)	12 (7.8)	37 (24.0)	40 (26.0)	65 (42.2)

### 5.6 How will Mobile Phone Technology Change the Work Situation of Academics in Institutions of Higher Learning?

Academics in this section were given a list of ten statements to indicate their opinions in how mobile phone technology can change the work situation of academics in Institutions of Higher Learning. The findings were shown in table 8 and figure 5.23 were scored from the highest intensity to the lowest intensity.

According to the findings, 90.2 % of respondents preferred that "traveling teachers may work on the move" was the most important statement, where 84.4 % preferred that the second important statement was "more time to work". In addition, the findings show that the respondents gave for "academics need to learn how to make use of the mobile devices" 78.6%, "increased flexibility work" 74.5 %, "classrooms can be extended to the real world" 74 %, "more rapid answers to the students questions will be demanded" 73.4 %, "place will become both more and less important" 73.8 %, "no clear separation of work and value time" 67.5 %, "academics will not be able to escape the students" 61.7 %, "focus on one-to-one training" 59.1 %.

Table 8: Academics' Opinions in how Mobile Phone Technology can Change the Work Situation in IHLs by Scoring

No.	Statements	%
1	Traveling teachers may work on the move	90.2 %
2	More time to work	84.4 %
3	Academics need to learn how to make use of the mobile devices	78.6 %
4	Increased flexibility work	74.5 %
5	Classrooms can be extended to the real world	74 %
6	More rapid answers to the students questions will be demanded	73.4 %
7	Place will become both more and less important	72.8 %
8	No clear separation of work and value time	67.5 %
9	Academics will not be able to escape the students	61.7 %
10	Focus on one-to-one training	59.1 %

### 5.7 Mobile Phone Technology and Knowledge Sharing among Academics in Institutions of Higher Learning

The respondents were given a list of eighteen statements to assess their opinions and the potential use of mobile phone technology for knowledge sharing among academics in Institution of Higher Learning. The findings were presented in table 9 shows that a big majority of the respondents were 98.7 % ‘strongly agree’ or ‘agree’ that statement "academics can send and receive short text messages (SMS) from each other" was the most important feature for their work. The respondents used the SMS function of their mobile devices more often. The great advantage of using SMS is that it offers just-in-time information. In addition, the findings show that a big majority of the respondents were 92.9 % ‘strongly agree’ or ‘agree’ that the second

important feature was "academics can send and receive instant messages (IMs) from each other". Mobile phone offers a way to send instant messages at a much lower cost than traditional SMS messaging. Messages are sent and received by the use of the Internet means that the cost of messages depends only on the quantity of data sent. Furthermore, also a big majority of the respondents were 92.2 % "strongly agree" or "agree" that the third feature ranked was "Academics can share administrative information with colleague". Mobile phone technologies enhance communications among academics on campus. Through mobile devices, academics can receive administrative information such as announcements and urgent messages from faculty or university. In addition, 87.1 % of the respondents were "strongly agree" or "agree" that the fourth feature ranked was "Academics can stay connected to social networking sites in mobile environment". In addition, the findings show that the respondents gave for "Academics can stay connected to social networking sites in mobile environment" 87.1%, "Academics can create memos which can be sent to colleague from mobile or saved onto his/her office computer" 86.4 %, "Mobile phone technology can be used as peer locators, alerting academics when their contacts are nearby" 86.3 %..

Table 9 Academics' Opinions in how Mobile Phone Technology can Change the Work Situation in IHLs by Scoring

	Number of responses (%)				
	SD	D	N	A	SA
Academics can send and receive short text messages (SMS) from each other	0 (0.0)	2 (1.3)	0 (0.0)	44 (28.6)	108 (70.1)
Academics can send and receive instant messages (IMs) from each other	0 (0.0)	2 (1.3)	9 (5.8)	52 (33.8)	91 (59.1)
Academics can share administrative information with colleague	0 (0.0)	0 (0.0)	12 (7.8)	73 (47.4)	69 (44.8)
Academics can stay connected to social networking sites in mobile environment	2 (1.3)	1 (0.6)	17 (11.0)	58 (37.7)	76 (49.4)
Academics can create memos which can be sent to colleague from mobile or saved onto his/her office computer	2 (1.3)	3 (1.9)	16 (10.4)	65 (42.2)	68 (44.2)
Mobile phone technology can be used as peer locators, alerting academics when their contacts are nearby	7 (4.5)	0 (0.0)	14 (9.1)	51 (33.1)	82 (53.2)
Academics can send and receive	0 (0.0)	7 (4.5)	16 (10.4)	60 (39.0)	71 (46.1)

e-mail from each other					
Academics can share and listen to Podcasts/audio books with colleague	0 (0.0)	4 (2.6)	21 (13.6)	78 (50.6)	51 (33.1)
Academics can use a mobile phone technology to send pictures or movies to each other	0 (0.0)	8 (5.2)	19 (12.3)	65 (42.2)	62 (40.3)
Academics can record conferences, seminars, workshops, symposiums, interviews, lectures and sent it to his/her colleague through mobile device	0 (0.0)	4 (2.6)	24 (15.6)	69 (44.8)	57 (37.0)
Mobile phone technology represents a classroom communicator that enables increased flexibility in course content and delivery among academics	2 (1.3)	9 (5.8)	22 (14.3)	68 (44.2)	53 (34.4)
Academics can publish e-books and e-papers	1 (0.6)	2 (1.3)	34 (22.1)	58 (37.7)	59 (38.3)
Academics have ability to read work related documents via PDF, HTML, and Microsoft Office files	0 (0.0)	10 (6.5)	30 (19.5)	47 (30.5)	67 (43.5)
Academics can share e-books, journals, or other academic materials	2 (1.3)	4 (2.6)	35 (22.7)	50 (32.5)	63 (40.9)
Academics can share downloads and view streaming movies/video clips	0 (0.0)	14 (9.1)	28 (18.2)	36 (23.4)	76 (49.4)
Academics can share with colleagues research findings	0 (0.0)	8 (5.2)	34 (22.1)	44 (28.6)	68 (44.2)
Academics can use the micro web browser for conducting quick research online	0 (0.0)	2 (1.3)	41 (26.6)	42 (27.3)	69 (44.8)
University can set up mobile phone technologies as database for academics to download documents, applications and university roles	1 (0.6)	7 (4.5)	44 (28.6)	37 (24.0)	65 (42.2)

## 6.0 CONCLUSION

The quick adoption of new technologies of mobile phone gives both academics and students anywhere and a diversity of options for anytime how they accept useful information. The Institutions of Higher Learning are in the first rank to know and to make easier the integration of technologies of next generation. Both academics and students can take more responsibility for their own work. The mobile phone technology has made knowledge and easily accessible to those who request it. New technologies also help to make easier approach to knowledge, to create opportunities for the collaboration and to eliminate lines among academics on and off the campus. Mobile phone technologies give an opportunity to provide a new generation of people with means of communication with activities without taking into account the place. This study outlines the potential use of mobile phone technology for knowledge sharing among academics in Institution of Higher Learning. The usefulness of mobile phone technologies has been demonstrated in recent times in most of the patterns of life for people on a personal level or generally.

The study founded out that there are at least four factors could lead to the adoption of mobile phone technology among academics in an Institution of Higher Learning. These factors are; attitudes towards the use of mobile phone technology, perceived usefulness to use mobile phone technology, perceived ease of use of mobile phone technology, and behavioral intention to use mobile phone technology. The issues moved up here require additional research. Since the survey was limited to one IHL, the outcomes might not be appropriate to all the IHLs. Thus, future research should consider larger sample size from different IHLs. In addition, more studies need to be carried out using other methodology such as interviews. Finally, the results from this study encourage the researcher to research and study what are the factors that could lead to the adoption of mobile phone technology that can be utilized to promote knowledge sharing among academics in an Institution of Higher Learning.

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