Educational Use of Mobile Phones by Undergraduate Students: An Indian Perspective

IshitaHalder, Khudiram Bose Central College, India

SantoshiHalder, University of Calcutta, India

Abhijit Guha, Ramakrishna Mission Sikshanamandira University, India

Abstract

As India has the world's second largestmobile phone user base (over 929.37 million users, May 2011) and Wireless communication has emerged as one of the fastest diffusing media on the planet, fuelling an emergent' mobile youth culture', it will be interesting to explore the attitude of undergraduate students towards the use of mobile phones for educational purposes. We all know that mobile phones provide multitude of features and services so much so that mobile phone has become an important part and parcel of everyday modern life. Thus, increased popularity of cell and smart phones in recent years has attracted research attention. The present study seeks to discover whether it is blissful for students regarding their studies and whether there remain significant differences in their attitude towards using mobile phones for educational purpose with respect to gender, medium of education, academic discipline and residence of the undergraduate students particularly focusing on the three main dimensions of usability, barriers and preferability of using mobile phones for educational purpose. The study deals with 100 samples comprising of both males and females from different colleges under University of Calcutta. Data tools included a General Information Schedule and a questionnaire. Significant differences were noted in the attitude of the students with respect to gender, medium of education and residence while with respect to academic discipline the difference in the attitude of undergraduate students was insignificant.

Keywords: Attitude, Undergraduate students, Mobile phone, Educational purpose

Introduction

Mobile phones are arguably another revolutionary invention of our time, besides computer and internet technologies. Mobile technology is growing by leaps and bounds.From 1990 to 2014, worldwide mobile phone subscriptions grew from 12.4 million to over 6.9 billion, penetrating about 97% of the global population with Asia as the fastest growing region and India being the biggest market of cellular phones (after China with 893.3 million users, TRAI,2014). Mobile phones today go beyond just voice communication and provide a multitude of other features and services including short message service (SMS) or text messaging, multimedia messaging (MMS), photo display and recording, video playback and recording, calendaring, reminder (clock and alarm), web-browsing, checking e-mails, retrieving sports scores and news, using online dictionary etc. In other terms, mobile phone has become an important part and parcel of everyday modern life. However, to many, the mobile phone is not a tool for making just phone calls, but rather, a 'lifeline' to the social network and an instrument for smoothly operating and coordinating their everyday life (Matthews, 2004). In education, mobile phones have led to the evolution of new paradigm known as mobile learning or m-learning. (Muyinda*et al,* 2007). Ferry (2009) describes that modern mobile phones can be used to help students to access web based contents, remix it, share it, collaborate with others and create media rich deliverable for the classroom teachers as well as global audience.Rather than seeing mobile phones as troublesome devices, educators should seek to exploit the potential of the technologies learners bring with them and find ways to put them into good use for the benefit of learning practice (Sharples, 2003). Many studies (Attewell, 2005; Chen & Kinshuk, 2005; Murat, S et al, 2008) have already proved that mobile technologies have considerable potential to enhance teaching and learning across all education sectors. Their impact on student behaviour, enthusiasm, motivation and progress is well acknowledged (Rau et al. 2008), especially in some conventional schools in abroad e.g. U.K. (Cook et al. 2007).

Now, we have entered in an age which cannot be imagined without mobile phone. Hence, this study has much relevance today as through it we can understand the attitude of young population towards using mobile phones. As young population is the future of the country, hence, their views are of utter importance. From this study, we can get a clear picture of difference of attitude of undergraduate students based on gender, educational stream, medium

of education, area of residence etc. From this difference in attitude, the probable causes can be predicted.

Mobile Phone and its Use and Utility

We are moving into an era when mobile devices are not just for talking and texting, but can also access the internet and all it has to offer (Pew Research Center,2010).Mobile phones are used for a variety of purposes, including keeping in touch with family members, conducting business, and having access to a telephone in the event of an emergency.The use of a mobile phone is not limited to speaking alone it is being used in making video, recording information and transmitting it to a phone or a computer as was being done by a computer, mobile banking and payment, surveillance and GPS services, ticket booking etc. Students can discuss their assignments or project works over phone which otherwise can be a lengthy and boring.Over two-thirds of the university students in their study used electronic media (including cell phones) while in class, studying, or doing homework (Jacobsen & Forste 2011) . The usage of phones are not intended for negative purpose and influence, however the attitude and time channelled towards these devices has enslaved the students , also making them addicts.

Literature Review

For this particular study related to the attitude of the undergraduate students towards using mobile phones for educational purpose, several extensive research reports or literature were studied.Madden, et al (2013) found that Smartphone adoption among American teens has increased substantially and mobile access to the internet is pervasive. One in four teens are "cell-mostly" internet users, who say they mostly go online using their phone. A study conducted in Nigeria (Utulu, 2012) revealed that mobiles phones were used by students for communicating with lecturer in charge of the course, collect data (recordings), sending emails to lecturers, access Online Public Access Catalogue and share knowledge.Indeed, some studies suggest that mobile learning applications can facilitate students in various ways like not only learning contents easily but also interacting with others anytime and anywhere, at his or convenience. Hence, the development of m-learning as a new strategy for education has implications for the way students and tutors in educational institutions interact (Huang et al, 2010). Findings of a recent study (Javid et al, 2011)showed that mobile phones are helpful for the students for study purposes. Students can use it for exchanging useful information with

their classmates about their studies. Results of another study (Ferry, B. ,2009)indicated that modern mobile phones can be used to help students to access web based contents, remix it, share it, collaborate with others and create media rich deliverable for the classroom teachers as well as global audience.Results revealed in an investigation (Thaden, 2007) to determine gender effect or influence on the students' perception focused an overall positive perception regarding the usage of cell phone technology mainly in secondary education.Positive responses from surveys suggest that there is interest in and potential for educational implementation and use of mobile phones as learning tools in schools.The educational advantages of using handheld devices over full-size computers are attractive.A wide variety of devices such as cell phones, PDAs, laptops, but also devices like pen-scanners are used for mobile learning (Trifonova and Ronchetti, 2004, 2006; Trifonova et al., 2006; Vasiliou and Economides, 2007; Petrova, 2007; Triantafillou et al., 2008). Another unique study (Bhandari, A and Gangopadhyay, D. &Vasal, I, 2006) found that cultural dimensions such as masculinity vs. feminity, absence of individualistic perspective and economic dependence do play a part in creating barriers that prevents easy adaptation of mobile phones particularly in the third world countries like India. Another study suggests that indicated cultural differences in communication style preferences had an impact on the adoption rates of wireless technologies (Castells, et al 2004&Hofvenschiold, 2003).Over the last decade the mobile phone has penetrated in every sector, presenting many opportunities to many areas, including higher education (Campbell, 2002).

Mobile communication offers a lot of advantages but it has also negative aspects and some studies have tried to find out the negative impacts of mobile phones on the pupils too. In response to a question about mobile-phone addiction, one out of three students said that they felt addicted to their phones. This sense of addiction may be related to dependency and heavy usage (Katz, 2005).There is scarcity of particularly this kind of study in India. Hence, there is pertinent need of this kind of study here for better understanding of the undergraduate students towards using mobile phone for educational purpose.

Methodology

Research Questions

Whether the attitude of undergraduate students towards mobile phone use (three dimensions namely usability, preferability and difficulty) for educational purposes differs with respect to gender?

Whether the attitude of undergraduate students towards mobile phone use (three dimensions namely usability, preferability and difficulty) for educational purposes differs with respect to educational stream?

Whether the attitude of undergraduate students towards mobile phone use (three dimensions namely usability, preferability and difficulty) for educational purposes differs with respect to medium of education?

Whether the attitude of undergraduate students towards mobile phone use (three dimensions namely usability, preferability and difficulty) for educational purposes differs with respect to habitat of the undergraduate students.

Sample

Undergraduate colleges were chosen by purposive sampling and students were chosen randomly for the survey research study.The total number of sample was 55 comprising students between 18 to 21 years of age. The mean age of the samples is 19.11 years. The samples were collected from various undergraduate colleges in and around Kolkata in order to get responses from students with varying cultural, economic and social background as well as different academic disciplines.

Tools

(a) **General Information Schedule (GIS)** for collecting demographic characteristics (e.g. age, gender, residence etc.)

(b) **Questionnaire to explore the attitude of the students towards mobile use for educational purpose.** This comprised of three dimensions namelyusability, preferability and difficulty to explore the attitudes of the students. The questionnaire was validated for content validity through a panel of experts in the field and the reliability measures were found to be .63 indicating high reliability for all of the dimensions.

Data Collection and Data Analysis

The data were collected from the subjects during January-February months of 2014. Data analyses (t-test) were carried out with the help of SPSS software.

Definition of Operational Terms

An **attitude** is an expression of favour or disfavour toward a person, place, thing, or event (the attitude object). Prominent psychologist Gordon Allport described attitudes "the most distinctive and indispensable concept in contemporary social psychology". Attitude is also measurable and changeable as well as influencing the person's emotion and behaviour.

A college or university student who has not yet received a bachelor's or similar degree is said to be a**undergraduate student.** It means that undergraduates are students of universities and colleges, they have passed out from high schools and have been accepted to colleges, but they haven't graduated yet.

A **mobile phone**(also known as a cellular phone, cell phone and/or hand phone) is a phone that can make and receive telephone calls over a radio link while moving around a wide geographic area. It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network.Activities that are integral, immediate, and proximate to the education of students, or in the case of libraries, integral, immediate, and proximate to the provision of library services to library patrons, qualify as **"educational purposes"**. Activities that occur on library or school property are presumed to be integral, immediate, and proximate to the education of students or the provision of library services to library patrons.Here, according to **residence**, students have been categorized as rural and urban. Rural students are those who have come from country-side with a rural schooling background (present residence is being ignored) whereas urban students are those who have come from city or town area and have a city-based schooling background.

Results and Interpretation

The results focused separately on the attitude of undergraduate students towards using mobile phone for educational purpose based on the four variables namely, gender (Table 1), academic discipline (Table 2), medium of education(Table 3) and area of residence(Table

4).The attitudes of each four variables are again measured based on the three variables namely, usability, barriers and preferability of using mobile phone for educational purpose.

Table 1: Attitude of the Undergraduate Students with Respect to Gender

Dimensions	Gender	Mean	S.D.	t-value	P
Attitude towards usability of Mobile Phones	Male	60.74	6.98	1.46	0.15 NS
	Female	63.07	4.68		
Attitude towards barriers of Mobile Phones	Male	8.41	2.24	8.95	0.00**
	Female	13.86	2.27		
Attitude towards preferability of Mobile Phones	Male	24.78	2.59	1.32	0.19 NS
	Female	25.71	2.66		
Overall attitude of undergraduate students	Male	93.93	7.31	5.57	0.00**
	Female	102.64	3.81		

*=Significant at 0.05 level, **= Significant at 0.01 level, N.S.= Not Significant

The t test results (table 1) indicate significant differences (t=05.57,P< 0.01) between the attitudes of male and female students towards using mobile phones for educational purposes. While focusing on the three dimensions it can be retrieved that gender-wise attitude towards usability (t=01.46,P>0.05) and preferability (t=01.32,P>0.05) of mobile phones are insignificant but there lies significant difference between the attitudes of male and female undergraduate students regarding the barriers of using mobile phones (P<0.01).

Table No 2: Attitude of the Undergraduate Students with Respect to Academic Discipline

Dimensions	Gender	Mean	S.D.	t-value	P
Attitude towards Usability of mobile Phones	B.Sc.	62.08	7.12	0.17	0.87 NS
	B.A.	61.80	4.96		
Attitude towards	B.Sc.	10.36	3.40	1.59	0.12 NS

barriers of Mobile Phones	B.A.	11.87	3.57		
Attitude towards preferability of Mobile Phones	B.Sc.	24.52	2.68	1.93	0.06 NS
	B.A.	25.87	2.50		
Overall attitude of undergraduate students	B.Sc.	96.96	8.26	1.32	0.19 NS
	B.A.	99.53	6.16		

*=Significant at 0.05 level, **= Significant at 0.01 level, N.S.= Not Significant

Based on the t test results (table 2) it can be concluded that there lies no significant difference (t=01.32, P>0.05) between the attitudes of undergraduate students pursuing science and arts streams.Educational stream wise also there lay no significant differences in all the three dimensions namely usability (t=0.17,P>0.87), barriers (t=01.59,P>0.12) and preferability (t=01.93,P>0.06) of using mobile phone for educational purpose.

Table 3: Attitude of the Undergraduate Students with Respect to Medium of Education

Dimensions	Gender	Mean	S.D.	t-value	P
Attitude towards usability of Mobile Phones	**Bengali**	61.44	6.33	1.14	0.26 NS
	English	63.67	4.31		
Attitude towards barriers of Mobile Phones	**Bengali**	10.35	3.34	3.66	0.00**
	English	14.17	2.55		
Attitude towards preferability of Mobile Phones	**Bengali**	25.21	2.82	0.24	0.81 NS
	English	25.42	2.02		
Overall attitude of undergraduate students	**Bengali**	97.00	7.40	2.81	0.01*
	English	103.25	3.84		

*=Significant at 0.05 level, **= Significant at 0.01 level, N.S.= Not Significant

Based on the t test results (table 4) it can be concluded that the attitude of undergraduate students towards using mobile phones for educational purpose vary significantly according to their medium of education(t=02.81,P<0.05). But there lies no significant difference between the attitude of Bengali and English medium students towards the usability (t=01.14,P>0.05) and preferability(t=0.24,P>0.05) of using mobile phones for educational purpose. Interestingly, there lies significant difference in the attitude of the two different medium students regarding the barriers (t=3.66,P<0.01) of using mobile phones for educational purposes.

Table 4: Attitude of the Undergraduate Students with Respect to Area of Residence

Dimensions	Gender	Mean	S.D.	t-value	P
Attitude towards usability of Mobile Phones	Urban	64.03	5.20	3.08	0.00**
	Rural	59.40	5.97		
Attitude towards barriers of Mobile Phones	Urban	12.33	3.58	2.80	0.01*
	Rural	9.80	3.03		
Attitude towards preferability of Mobile Phones	Urban	25.83	2.59	1.81	0.08 NS
	Rural	24.56	2.60		
Overall attitude of undergraduate students	Urban	102.20	4.51	5.27	0.00**
	Rural	93.76	7.27		

*=Significant at 0.05 level, **= Significant at 0.01 level, N.S.= Not Significant

Based on the t test results (table 4) it can be logically concluded that there lies significant difference (t=05.27,P<0.01) between the attitudes of rural and urban students towards using mobile phones for educational purpose. While focusing on the three dimensions it can be retrieved that the residence-wise attitude of undergraduate studentstowards the usability (t=03.08,P<0.01) and barriers (t=02.80,P<0.05) of using mobile phones are very much

significant but there lies no significant difference in their attitudes towards the preferability (t=01.81,P=0.08 NS) of using mobile phones for educational purpose.

Discussion

From the present study it has been found that the attitude of undergraduate students towards using mobile phones for educational purpose varies according to gender, medium of education and residence though the educational stream (science or arts) doesn't impose any significant difference according to the study. Mobile phones have a potential of improving the teaching and learning processes as the tools are cheap compared to other ICTs which can be used for teaching and learning (Mtega, P.W. et al., 2012).Though most scholars agreed that the gender gap in internet use had narrowed significantly among students in college age-group (Goodson et al., 2001; Odell etal., 2000)and also among general population (Brenner, 1997; Jackson et al., 2001; Ono &Zovodny, 2003) but there are contradicting views too. Several studies reported that technologies were not utilized in similar ways by men and women and as a result some differences still existed (Mitra et al., 2005). And likewise, this study has also found significant difference of attitude between male and female undergraduate students. In a third world country like us the gender gap in technological aspect like using mobile phone is much prominent.From this study, it can be concluded that Bengali and English medium students have significant difference in the attitude towards using mobile phone for educational purpose. It may be due to the factor that lately it has become a trend that children of well-to-do or in fact middle (upper) class families go to the English-medium private schools(DISE, 2010-11). Hence the difference of attitude may attributed by the fact that the students with English medium background may have more resources and privilege of using technology like mobile phones not only for talking but also for educational purpose.There should also lay significant difference in the attitude of students according to educational stream (B.Sc. or B.A.). But this study has found none. It may be due to the fact that students pursuing technical course like B.Tech, M.Tech or BCA, MCA or medical courses were not surveyed. Hence this may be considered a major loophole of the study.Residence-wise difference of attitude among students can be recognized as the people living in the rural areas throughout their lives find it difficult to cope-up with the new technology (Jhunjhunwala, 2008).

Suggestion for Further Study

Further researches can be done to find out among the multitude of applications and services provided by mobile phone which one is the most convenient and popular among college students particularly for educational purpose. Studies may also be directed to explore the difference of attitude towards using mobile phone between the students of literature on one hand and technical, medical and engineering students on the other hand. Thus, various interesting and purposeful researches can be done regarding attitude of students towards using mobile phone.

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