Privacy and Security Issues of Mobile Phone: Perceptions of University Students

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

ABSTRACT

Mobile phone industry experiences one of the fastest rate in Bangladesh in South Asian region. Subscriber penetration reached 40% at the beginning of 2014 and it is expected to grow to 50% by 2020 (GSMA, 2014). Bangladesh has 9 core users of mobile phone at present out its 15 core population. When this mobile industry is booming, the safety and security issues related to the use of mobile phone become very serious concern for both users and regulators. The privacy and security issues of mobile phone users have become a major concern. This study concerns about how personal, social and economic safety and security, and privacy issues related to the misuse of mobile phone (threat, harassment and….). This study also concerns whether the crime committing has become more organized with the help of mobile technology and whether there should be a clear law to protect general people from harassment through mobile phone. The target population for his study is the students of private universities in Dhaka. The sample size is one hundred. The structured questionnaire based on Likert scale has been used to ask the respondents to indicate their agreement or disagreement on a five point scale ranging from strongly agrees. The study comes up with the findings that misuse of mobile phone (threat, harassment and …..), is a regular activity and as a result, the students do not trust the use of mobile phone anymore. Security issue could come up due to phone tapping by government, access to call list by unauthorized people, etc. Privacy issues come up from exposing the personal mobile to public, un-timely call, un-wanted call, etc. The respondents blame the government for lack of law to protect the interest of the users.

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A strong pro-user regulatory board is expected by them. The study also finds that the security concerns will be more significant in the coming days than before.

1. INTRODUCTION

As society moves further into the Information Age, people are becoming more and more dependent on wireless communication systems. With well over 70 million Chinese and 50 million Americans subscribing to cellular telephone services, globally-connected cities have taken on a new look as well as sound [1]. The packaging of mobile communications devices with internet services such as e-commerce and other broadband services is providing customers with fewer restrictions and greater flexibility.

Leopoldina and Fortunati [2] coined an interesting term, "virtual brotherhood". It explains the inner drive felt by the youth to use the mobile phone (or the SMS) in order to communicate with his(her) "virtual brothers and sisters", since he(she) has no consanguineous brothers and sisters due to the ever shrinking size of present-day family. Modern family, popularly known as "nuclear family" - (with husband-wife-children), is creating loneliness not only among the adults but also among the younger members of the family [3,2]. Consequently, the children look for external form of socialization and mobile phone become the primary tool, in this regard. At the beginning, the children become used to with SMS communication and eventually, as Santiago Lorente [3] observes they "Get increasingly tired and bothered by the SMS as they grow older and so they start communicating more and more through voice. They need fresh oral communication and do not bear the SMS asynchrony. They do not only call their peers but they start calling their older and adult members of the family and they begin self-organizing their lives".

Moreover, portability feature of the mobile phone, which also allows privacy of the users make this device more students friendly as research shows that just about half of the calls made by teenagers take place in the young's bedroom. The objective of this paper is to explore the student attitudes toward the use of mobile phone. It deals with the safety and security issue of university students of Bangladesh.

1.1 Overview of Mobile Phone Industry in Bangladesh

The vision of the Government is to make Bangladesh Digital by 2021. The present government has considered ICT as a driving tool for Socio-Economic Development. The government has also taken initiatives to assist talented young people and interested entrepreneurs for developing ICT skills in appropriate fields. It is also a thrust sector presently. A good deal of enthusiasm prevails in Bangladesh in both government and private sectors about the potential of ICT in accelerating the rate of growth and poverty reduction in the country [1]. The use of different types of ICT facilities in Bangladesh is presented in the following table.

Table 1 shows increasing tendency of use of computer facilities in Bangladesh especially in rural areas. The most notable information from the survey is that though mobile phone has been introduced in the country in early nineties; there has been substantial growth of mobile phone use. The use of Internet has considerably increased both in urban and rural areas as focus by the recent survey. Understandably, the use of the ICT facilities is much higher in urban areas compared to rural areas. Out of the mentioned ICT facilities, there has been rapid growth of use of mobile phones between 2005 and 2010. While only 11.29% of households used mobile phones in 2005, more than 63% of households were found to use them in 2010 [4]. The total number of mobile Phone subscribers has reached 115.628 million at the end of April 2014 with six mobile phone operators (See Table 2).

(http://www.amtob.org.bd/index.php/home/industry_statistics). It is considered as Asia's fastest-growing cellular markets. Grameen phone is the market leader with 42% market share. However, data about the student users of mobile phone are not available.

2. LITERATURE REVIEW

A number of issues concerned with mobile use of students are discussed by past researchers. The use of mobile phones disrupts academic

Table 1. Percentage of households having ICT facilities

Types of facility	National		Rural		Urban	
Year	2010	2005	2010	2005	2010	2005
Telephone	2.07	2.87	0.70	0.33	5.79	10.36
Mobile	63.74	11.29	56.77	6.05	82.74	26.73
Computer	3.01	1.36	0.97	0.17	8.58	4.88
Email	1.39	0.20	0.39	-	4.10	0.81

Source: BBS, household income and expenditure survey 2005 & 2010

Table 2. Mobile phone market of Bangladesh

Operators	Active subscribers	%
Airtel Bangladesh Limited (Airtel)	8.503	7%
Banglalink Digital Communications Ltd	29.449	25%
Pacific Bangladesh Telecom Limited (Citycell)	1.425	1%
Grameenphone Ltd. (GP)	48.847	42%
Robi Axiata Limited (Robi)	24.062	21%
Teletalk Bangladesh Ltd. (Teletalk)	3.342	3%
Total	**115.628**	**100%**

*Subscribers in millions; *Data is for end of April 2014*

environment [5], enables cheating on exams [6], harasses female students by nasty messages [7], provides threats [8], encourages use of mobile calculator to cheat on math tests [9] and hamper school security [10].

Besides, other researchers also found that most of the students use mobile phones with video-options [11] and these camera options are used to take photographs of quizzes or exams and transmit them to classmates [9]. These cameras also pose privacy threats e.g. photographing of classmates in restrooms and spread it electronically, which raises the issues of privacy, safety and security [11]. However, the camera capability of mobile phone also provides some benefits e.g. camera capability allows to record field trips or school events, and to develop photo essays [12].

Considering the in-security caused in educational institute due to increasing use of technology, a new term, "Cyber Bullying" is coined by Bill Belsey- an educational advisor. It refers to the situations of annoying, abusing, threatening or harassing of another person through electronic means. This cyber bullying is possible through Word Wide Web (i.e. websites, blogs, emails, instant messaging, text messages, on-line games), mobile phones (i.e. messages and pictures) and pagers as locations for cyber bulling [13,14]. Herring [15] had identified four different forms of cyber violence: online contact/ off line harm, cyber stalking, degradation and harassment. Li, (2005) found that phone calls, text messages and email were the most widespread form of cyber bullying.

Many researchers also found that many types of harmful activities (i.e. hate-speech, threats, stalking, harassment, sexual remarks, vulgar language) are occurring by mobile phone and other ICT devices [15,16,13,17].

3. RESEARCH OBJECTIVE

The objective of this paper is to explore the student attitudes toward the use of mobile phone. The focus of the study is on safety, security and privacy issues concerning the possession and use of mobile phone by the university students. As far as the present research is concerned mobile phone includes, both feature and smart version and no discrimination was done on the basis of between these two versions in case of data collection and data analysis.

4. METHODOLOGY

The research is designed to explore the student perception about safety and security issue of mobile phone. Convenient sampling approach is followed to collect the data. A structured questionnaire is used to collect the data. The sample size is 100. The data is collected from private university students.

5. RESULTS AND DISCUSSION

5.1 Safety of Mobile Device

In this study Table 3 shows around 45.2 of the young (student) mobile users are pleased with the existing internal security system, which is offered in present day mobile sets and 30.7 percent were neutral. On the other hand 75 percent of the mobile phone users are concerned about the misuse of information and number stored in mobile in case of losing the mobile phone, whereas 16.3 percent are impartial in this mater, which means, 74 percent of the young users are interested about the accessibility of technology to wipe out the mobile set in case it is lost and 13.5 percent users are not bothered about this.

5.2 Security of Mobile User

Table 4 shows safety and security concern, where around 75% of young mobile users are worried about the originality of mobile sets, which they are using now and around 19.2% are not interested with this issue. The use of mobile phone can risk one's personal safety and security as well. This study divulges that 61.6% of young mobile users believe that one's daily life could be at risk by using an expensive mobile set and 31.8 were nonaligned in this point. On the contrary only 56.8% young respondents believe that the facilities of mobile phone like FM radio, MP3 may cause danger in our normal movement.

5.3 Privacy of Mobile User

The theme of privacy has appeared as a burning issue with the matter of personal safety and security. Correspondingly, the Table 5 implies that 67.3% young mobile user think a person's privacy can fall at risk through the information stored in mobile set. On the other hand, 23.1% remains neutral at this point. In the same way 85.5% of the young respondents assume that the technology of recording phone chat can hamper one's privacy, 12.5% respondents were neutral & only 2% respondents were strongly disagree, in this regard.

Besides, 85.5% respondents think that one can harassed by strangers in his or her mobile phone and 13.5% respondent remain neutral in this matter.

The Table 5 also asserts that 73.2% of the young mobile users believe that the recent technology available in mobile set cannot ensure the privacy of mobile phone and 20.2% were silent, in this regard. On the contrary, 37.5% of the young mobile user thinks that individual privacy is not hampered through technology and 30.8% divergent on the fact. Conversely, 44.7% of the respondents believe that when any student use mobile phone in the organization, the privacy & security of university gets into a risk and 39% remain neutral at this point.

Similarly 67.4% of the young users consider that availability of mobile phone could leak out the confidential information of a country and 25% respondents were neutral at this point. Besides, violation of private space is easier by mobile technology as 54.8% of the young respondent thinks that people get disturbed at midnight by unknown callers and also from unnecessary mobile call from friends. It is also seen that people get disturbed also by unwanted SMS (66.4%). Moreover, 45.2% of the respondents observe that use of MMS aggravates the problem.

Table 3. Safety and security of mobile phone

Variables	Factors	Strongly agree/ agree	Neutral	Strongly disagree/ disagree
Safety/ Security of set	Availabilities of sufficient internal securities (e.g. PIN number, password etc) for the mobile phones.	45.2	30.7	24.1
	The chance of misuse the information and number stored in mobile in case of losing the mobile phone.	75	16.3	8.7
	The technique to destroy the mobile set in case of lost.	74	12.5	13.5

Table 4. Personal safety

Variables	Factors	Strongly agree/ agree	Neutral	Strongly disagree/ disagree
User safety	Worried regarding originality of mobile sets.	75	19.2	5.8
	Carrying an expensive set puts our regular life in danger.	61.6	31.8	6.6
	The facilities of mobile phone like FM radio, MP3 may causes danger in our normal movement. (walking by the roadside, driving, crossing road)	56.8	25	18.2

Table 5. Privacy issues

Variables	Factors	Strongly agree/ agree	Neutral	Strongly disagree/ disagree
User privacy	A person's privacy can fall at risk through the information stored in mobile set.	67.3	23.1	9.6
	The technology of recording phone chat can hamper privacy	85.5	12.5	2
	One can harassed by strangers though his or her mobile phone.	85.5	13.5	1
	The recent technology available in mobile set cannot ensure the privacy of mobile phone.	73.2	20.2	6.6
	Person's privacy is not hampered through technology.	37.5	30.8	31.7
	When any students use mobile phone in the university, the privacy & security of university gets into a risk.	44.7	39	16.3
	Availability of mobile phone could leak out the confidential information of a country by far.	67.4	25	7.6
	People get disturbed at midnight by unnecessary mobile call from friends	54.8	23.1	22.1
	Disturbance by unwanted SMS	66.4	20.2	13.4
	The issue of MMS	45.2	31.7	23.1

5.4 Use of Camera Technology

Mobile camera has created a revolution as people are free to take snaps anywhere, which also cause security risk. The study shows that 62.6% of the young respondent approved that students may lose their privacy and security due to availability of mobile camera, where 23% of the respondent was strongly disagreed on that statement. Consequently, half of the respondents (52.8%) believe that the security of assets is decreasing with the availability of mobile (camera, MMS) technology. 26% of the respondents were neutral and 21.2 were disagreed on this matter. Therefore, as per the opinion of young respondents the technology of mobile camera should be considered as threat for privacy and security of personal life.

5.5 Offense

The recent advance technologies of mobile phone make the occurring illegal incidents easier than before. The Table 6 shows about 84.7% of the young mobile user believe that crime has become more planned with the help of mobile technology and 11.5% were in neutral position in this matter. So this entails that the majority of young mobile user believe the camera technology of mobile work as a background of crime.

Half of the respondents' confirm that the use of mobile phone disrupts academic pursuits of the students. However, another 49.4% objects to the idea and around 10.2% are neural about the issue. The fascination of the young users about

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the use of mobile phone discourages the students to express their negative feeling about the use of mobile phone.

5.6 Mischarge and Usage

Regarding the mobile balance, mobile subscribers often face troubles. Fig. 1 shows that there is problem of unclear billing policy as 50.9% of the young mobile users agree that so often the balance of mobile phone found rip down, even if it is not being used for call/ MMS/SMS or for other purposes. 29.8% of the mobile user was nonaligned at this matter. Besides, 75.1 percent mobile subscribers believes that clumsy & convoluted packages offered by mobile companies may deceive mobile user to clear about the call rate or other charges.
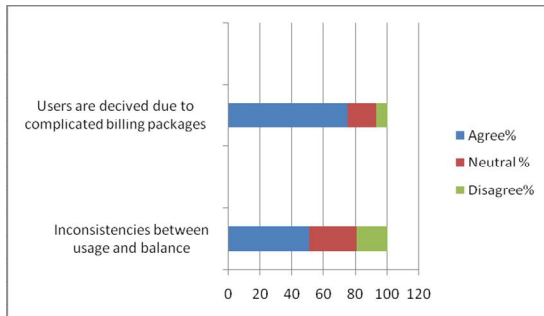

Fig. 1. Financial issues

5.7 Legal Framework

It is evident from the above Fig. 1 is that 63.4% of the respondents are in favor of legal protection against unclear billing policy, confusing offer and actual usage. Besides, Fig. 2 shows 84.6% of the young mobile phone users look for a strict legal framework for protection against harassment through mobile phone. It seems that young mobile users would like to be protected by law from many types' of harassments through mobile devices.
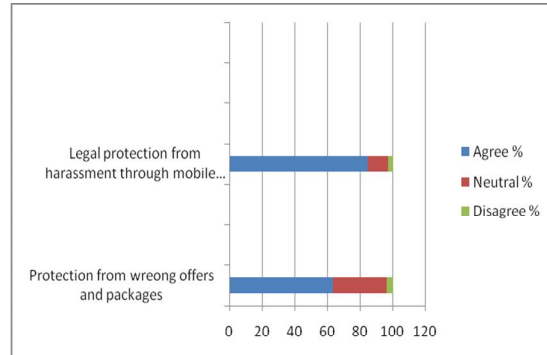

Fig. 2. Protection

5.8 Threats and Opportunity

In Table 7 the research found (50%) that use of mobile is safe despite the threats of mobile technology. This technology is giving people more security of life than risks and 73% of the respondents think that mobile is the need of time and it could not be avoided.

The basic findings of this research show that mobile phone technology offers both benefits and threats. Government legal actions are expected for the regulation of this sector so that harassment, crime, threats to privacy, etc. can be monitored and measures can be taken to protect the users of the very crucial communication device of this time.

Table 6. Increase of crime

Variables	Factors	Strongly agree/ agree	Neutral	Strongly disagree/ disagree
Camera technology	Student or people may lose their privacy and security with available access of mobile camera.	62.6	14.4	23
	The security of assets is decreasing with the availability of mobile technology.	52.8	26	21.2
Mobile offense	Committing crime has become more controlled and organized with the help of upgraded mobile technology.	84.7	11.5	3.8
	The use of mobile phone disrupts academic background.	49.4	10.2	40.4

Table 7. Mobile in daily life

Variables	Factors	Strongly agree/ agree	Neutral	Strongly disagree/ disagree
Privacy Vs security	Use of mobile phone increases life security than life risks.	50	33.7	16.3
	Mobile is need of time	73	18.3	8.7

6. DISCUSSION AND CONCLUSIONS

Mobile phones are now an accepted part of the education culture. This device is used by teachers, staff and students for exchanging information, academic development and socialization. In this course, abuse of mobile technology is also on rise. Concerned about their private life, cyber crime, and unfair means taken in the examination is raised by the respondents of this survey. Most schools or districts do have policies in place, and principals believe that parents are generally supportive of the approved policies. The research finds that the use of mobile by students causes security risk and threats to privacy.

The issue of regulating the use of mobile phone is raised by the respondents. Past research (e.g., Broward County, FL; Salinas, CA; Crosby, TX) found mixed results about the restrictive policy on cell phone use. While a group opposes the imposition of restriction, others favor mild to moderate level of restriction on the use of mobile phone by the students. In closing, the research shows ample evidences that the number of students concerned about the safety and security issues related to the use of mobile phone is significant.

DISCLAIMER

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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