# STUDENTS' USE OF MOBILE DEVICES: AN EXPLORATORY SURVEY IN AN INTRODUCTORY COMPUTER INFORMATION SYSTEM CLASS.

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## ABSTRACT

*Use of mobile devices in classrooms is posing a major challenge to instructors. This exploratory research surveyed 181 students enrolled in the introductory CIS class on the use of mobile devices including cell phones. The results were compared with a similar survey conducted on teens by the Pew Research Center. Major similarities and differences between the results of the two surveys are presented.*

**Keywords:** Information Technology (IT), Cell Phones Usage and Civility, Mobile Devices, Classroom.

## INTRODUCTION

For years, educators have been clamoring to put technology in the hands of young students, but of late there has been a noticeable shift in this policy. In 2008, the University of Chicago Law School turned off Internet access in classrooms in order to ensure the value of the classroom experience [9]. At the University of Oklahoma, Professor Kieran Mullen became an Internet sensation when a student recorded him freezing a laptop in liquid nitrogen and shattering it. In his web page, the professor however clarified that the laptop was a plant and was non-functional before freezing but the episode did help him improve students' attention in his classroom [6].

In a recent commencement speech at Hampton University in Virginia, President Obama lamented the tendency of popular electronic devices to simply entertain and divert, rather than educate [10]. The president further added: "With iPods and iPads; Xboxes and PlayStations...information becomes a distraction, a diversion, a form of entertainment, rather than a tool of empowerment, rather than the means of emancipation."

The cell phone has revolutionized the way we live and communicate. During 2009, over 1.2 billion cell phones were sold world-wide. There are over 270 million cell-phone users in the United States and 82 percent of them do not leave their homes without their devices.

Nearly all university students own a cell-phone and this device has impacted their social life. Use of cell phones by students in the classroom is also proving a major challenge to most professors. Today, many syllabi contain statements banning the use of cell phone in the classroom and many universities have also issued written policies to this effect.

## Pew Research Center's Research on Teens and Mobile Phones

The Pew Research Center, a nonpartisan "fact tank" that provides information on the issues, attitudes and trends shaping America and the world has been conducting longitudinal surveys on teens and mobile phones. The survey began in 2004 and the last report that contained the results of survey of 800 teens conducted in 2009 was released on April 20, 2010 [4].

The major findings of this survey were as under:
- The mobile phone has become the favored communication hub for the majority of teens.
- Girls more fully embrace most aspects of cell phone-based communication.
- One in three teens sends more than 100 text messages a day, or 3000 texts a month.
- Cell phones are not just about calling or texting – with expanding functionality, phones have become multimedia recording devices and pocket-sized internet connected computers.

Our research was conducted to survey students enrolled in the introductory CIS class on their use of mobile devices and the internet. Special emphasis was laid on cell-phones so that the data could be compared to a nation-wide study conducted on the use of cell-phones by teenagers.

## RESEARCH METHODOLOGY

This study was oriented towards freshmen and sophomore students enrolled in the introductory CIS class. This class was selected so that we could compare the results with those reported by the Pew research center on their survey of teenagers.
The survey was designed in-house using ASP.Net and was administered on the Internet. A total of 181

students from eight different sections of the class participated in the survey. The survey had a total of 25 questions that included some demographic questions. The demographics of the survey respondents are shown in Table 1.

**Table 1. Demographics of Survey Respondents**

| Characteristics | | N | % |
|---|---|---|---|
| Gender | Male | 88 | 48.6% |
| | Female | 93 | 51.4% |
| Residence | On Campus | 105 | 58.0% |
| | Off Campus | 76 | 42.0% |
| Age-years | <18 | 1 | 0.6% |
| | 18 | 22 | 12.2% |
| | 19 | 20 | 11.0% |
| | 20 | 49 | 27.1% |
| | 21 | 46 | 25.4% |
| | 22 | 27 | 14.9% |
| | >22 | 16 | 8.8% |
| Classification | Unknown | 7 | 3.9% |
| | FR | 65 | 35.9% |
| | SO | 71 | 39.2% |
| | JR | 26 | 14.4% |
| | SR | 12 | 6.6% |
| Colleges | Liberal Arts | 41 | 22.7% |
| | Business | 85 | 47.0% |
| | Education | 4 | 2.2% |
| | Sciences | 49 | 27.0% |
| | Undecided | 2 | 1.1% |

**RESULTS**

Personal ownership of electronic devices is shown in Table 2. All the 181 students surveyed owned a cell-phone. Ownership of PCs including laptops was 90%. Only 28% of the students owned a portable game console

**Table 2. Ownership of electronic devices**

| Ownership | N | % |
|---|---|---|
| Cell Phone | 181 | 100% |
| PC/Laptop | 163 | 90% |
| MP3 Player | 139 | 77% |
| Game Console | 99 | 55% |
| Portable Game Console | 51 | 28% |

Over 85% of students accessed the Internet several times a day while the remaining 15% accessed it between 3-5 days/week as shown in Table 3.

**Table 3. Frequency of Internet Access.**

| Frequency | N | % |
|---|---|---|
| Several Times a day | 154 | 85% |
| 3-5 days a week | 27 | 15% |

All the 18 students who did not own a PC had the lower frequency for Internet access.

The students' response on the use of Internet for various activities is detailed in Table 4.

**Table 4: Use of Internet**

| Do you use the internet to | N | % |
|---|---|---|
| use an online social networking site like Facebook | 158 | 95% |
| to get news or information about current events or politics. | 172 | 87% |
| to buy things online, such as books, clothing, or music | 151 | 83% |
| to look online for health, dieting, or physical fitness information | 132 | 73% |
| to share something online that you created yourself, such as your own artwork, photos, or videos | 127 | 72% |
| to look for information online about a health topic that's hard to talk about | 79 | 70% |
| to *take* material you find online — like songs, text or images — and remix it into your own artistic creation | 131 | 66% |
| to create or work on your own online journal or blog | 119 | 44% |
| to use Twitter | 74 | 41% |
| to visit virtual worlds such as Gaia, Second Life or Habbo Hotel | 29 | 16% |

The data reveals the importance of Facebook to the student community with over 95% of the students using the internet to access this social-networking site. The use of Twitter was relatively low with only 41% accessing this social-media site. Only 16% of the students used the internet for accessing virtual worlds. This data would suggest that the introductory CIS course should include exercises on Twitter and virtual worlds. We, as a university, have decided that

every instructor in the class would tweet on CIS topics every week and all students will have to follow their instructor on Twitter.

Of the various mobile devices, the cell phone is ubiquitous [8]. All the students in the survey owned a cell-phone. Their use of cell phone for various activities is shown in Table 5. The responses for these items were measured on a 5-point Likert-like scale (Every Day, Several times a week, At least once a week, Less than once a week, Never).

**Table 5: Students' use of cell phone.**

| Use | Daily N | Daily % | Never N | Never % |
|---|---|---|---|---|
| send or receive text messages | 158 | 87.3% | 2 | 1.1% |
| play music | 87 | 48.1% | 21 | 11.6% |
| use a Social Networking site | 78 | 43.1% | 46 | 25.4% |
| send or receive email | 77 | 42.5% | 52 | 28.7% |
| send or receive pictures | 65 | 35.9% | 11 | 6.1% |
| use an application that you installed | 65 | 35.9% | 52 | 28.7% |
| take a picture | 58 | 32.0% | 9 | 5.0% |
| send or receive Instant Messages | 58 | 32.0% | 54 | 29.8% |
| play a game | 44 | 24.3% | 46 | 25.4% |
| record a video | 37 | 20.4% | 30 | 16.6% |
| send or receive a video | 36 | 19.9% | 44 | 24.3% |
| buy a product | 33 | 18.2% | 44 | 24.3% |

The above table suggests that cell phones are not just about calling or texting – with expanding functionality, phones have become multimedia recording devices and pocket-sized internet connected computers.

Ninety-nine percent of the students surveyed used text messaging on their cell phones with over eighty-seven using this feature daily. The use of cell phones for buying products was relatively low. Table 6 shows the numbers of text messages sent every day by students. Over 48.6% of the students surveyed sent more than 100 messages per day using their cell phones.

**Table 6: Students' use of cell phone for texting.**

| # Texts/day | N | % |
|---|---|---|
| More than 200 | 58 | 32.0% |
| 101-200 | 30 | 16.6% |
| 51-100 | 36 | 19.9% |
| 21-50 | 26 | 14.4% |
| 11-20 | 18 | 9.9% |
| 1-10 text | 11 | 6.1% |
| None | 2 | 1.1% |

The use of cell phones in the classroom is shown in Table 7. Only 6% of the students had never sent or received text messages in the classroom. Over 67% of the students had made or received calls in the classroom. This data reveals the extent of challenges facing CIS instructors as we try to get their students' undivided attention.

**Table 7: Students' use of cell phone at school**

| Response | How often do you (at school) keep cell phone on | make or receive calls in class | send or receive text messages in class |
|---|---|---|---|
| No Response | 3(2%) | 8(4%) | 5(3%) |
| Several times a Day | 138(76%) | 50(28%) | 105(58%) |
| At least once a Day | 19(10%) | 18(10%) | 26(14%) |
| A few times a week | 6(3%) | 16(9%) | 22(12%) |
| Less often | 5(3%) | 37(20%) | 12(7%) |
| Never | 10(6%) | 52(29%) | 11(6%) |

It has been widely reported that cell phone has impacted the social life of most people [2, 3, 7]. Table 8 shows the different methods by which students in the survey socialized with their friends. Texting and calling on the cell phone appeared to be the preferred way of socializing with friends in the college campus. Over 85% of the students texted their friends on a daily basis while only 44.8% of the students physically socialized with their friends outside school.

**Table 8: Impact of cell phone on socializing**

| About how often do you | Daily | | Never | |
|---|---|---|---|---|
| | N | % | N | % |
| send text messages to each other | 155 | 85.6% | 3 | 1.7% |
| talk to friends on your cell phone | 128 | 70.7% | 2 | 1.1% |
| spend time with friends, doing social activities outside of school | 81 | 44.8% | 3 | 1.7% |
| send messages through social networking sites | 75 | 41.4% | 10 | 5.5% |
| talk to friends on a landline or home telephone | 60 | 33.1% | 42 | 23.2% |
| send instant messages to friends | 58 | 32.0% | 37 | 20.4% |
| send email to each other | 30 | 16.6% | 46 | 25.4% |

Since this was an exploratory study, t-tests (Anova for groups of more than two) were conducted to find any differences in responses for genders, classification, and college. No significant difference was noticed in any of the variables. The items on Likert-like scale were opertionalized using the following scale: every day (5), several times a week (4), at least once a week (3), less than once a week (2), never (1). We do not report the mean and standard deviation here because this was an exploratory research.

## CONCLUSIONS

The survey on teens conducted by the Pew research had reported that girls more fully embraced all the features of the cell phones. In this research, we did not find any difference between the two genders. Both the genders seem to have fully embraced all the features of the cell phones at the university level.

Further, it was established that most students have smart phones and although texting is the most important feature on a cell phone, students used the device as multimedia recording devices and pocket-sized internet connected computers. A large number of students use the cell phones for texting in the classroom and some of them also receive voice calls during class. This finding should help reinforce

universities resolve for banning the use of cell phones in the class room. The millennials (generation of people born from 1977 to 2002) are of the opinion that they can multi-task and use of the cell phones in the classroom should not offend professors [1]. But as instructors we know that it's impossible to pay attention to a lecture and use the cell phone at the same time. Further, as instructors we have also to teach our students what's appropriate in the work-place and most workplace do not appreciate you using the cell phone when you are working.

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