Coping with Smart Phone 'Distractions' in a College Classroom

Kehbuma Langmia
School of Communications
Howard University

Amy Glass
Graduate School of Education
Johns Hopkins University

The influx of smart phones in most college classroom is impacting instruction in a way that was never anticipated. Thus, a survey of full-time faculty members at a local university in the United States was conducted to test three hypotheses, followed by a one-on-one interview with a random sample of the same respondents to ascertain the effect of smart phones in the classroom. Results showed conflicting approaches by faculty on how to handle the situation. While some faculty members use smart phones for pedagogic reasons and experience positive results, most of them apply strict classroom phone policy with little success. Thus, a university social media tolerant policy for everyone to abide by in the 21st century seems to be the solution.

INTRODUCTION

This study is motivated by the attempt to regulate smart phone obsession by students in a classroom environment. Experience has shown that when students are allowed to bring these gadgets into the classroom, there is disturbance, distraction, disorder when they go off and when students pay more attention to them than the lectures. But at the same time, some studies have shown that integrating smart phones into the curriculum can positively affect teacher-student interaction. This study attempts to decipher faculty perception and seek common approaches to accommodate mobile technology in the college classroom.

Electronic media production and subsequent consumption has peaked in the last decade to the extent that smart phones have become ubiquitous in most college classrooms. This has complicated student-teacher interaction within the confines of the classroom environment. What is seemingly disturbing is the fact that generation "Yers" and "Zers" are not only glued to electronic media, they typify it (Kennedy, Judd, Churchward, Gray, & Krause, 2008; Lenhart, Purcell, Smith, & Zickuhr, 2010; Moeller, Powers, & Roberts, 2012). It would appear 'multi-tasking' has become the buzz word to describe this sort of phenomenon and educational authorities are scrambling to look for solutions especially in cases where retentive memories of the students

are affected adversely (Litchfield, Raban, Dyson, Leigh, & Tyler, 2009; McLane, 2012).

Studies have shown (Baker, Lusk, & Neuhauser, 2012; Tremblay, 2010; Milrad & Spikol, 2007; Wang, Wu, & Wang, 2009) that students respond favorably to new technological innovations and that the trend is likely to continue unabated in the foreseeable future. Many schools of higher learning are looking for coping mechanisms to keep pace with the voracious needs of these young millennials. Therefore, educators must adapt and understand new technology as well. This is what has inspired this study. More often than not, a faculty member is often torn between strict enforcement of banning the mobile phones entirely or restricting their use for emergency proposes only. Other faculty members welcome them in the classroom and make students use them accordingly during lecture. These three camps of liberal, moderate and conservative faculty member approaches to smart phone use in the college classroom, and the lack of consistent policies on how to enforce the rule, constitute the thrust of this study. Surveys and follow-up interviews with full-time faculty members at a local university in the Eastern Region of the United States of America were the appropriate means to get an unbiased view on this issue.

This study, therefore, examines the role of smart phones in the classroom setting during lecture. Students mostly have their smart phones on the desk, on their bags or on their laps in the classroom as lectures are in progress. Depending on the policy, put in place either by the institution or by the professor—mostly through the syllabus—students, more often than not, are allowed to put their phones on vibrate or switch off mode completely depending on the circumstances. This study prefers the term smart phones to cell phones since the former is holistic with basic internet capabilities (Mulliner, 2006; Ballagas, Borchers, Rohs, & Sheridan, 2006). With smart phones, the students have instant access to electronic mail, instant messenger, blogs, Facebook, Twitter, YouTube, Instagram, Pinterest, voice talk, texting, notepad and other applications that are powered by the Internet.

This study aims to provide answers to three research questions: 1) To what extent is students' use of smart phones a distraction in the classroom teaching environment? 2) How do smart phones serve as a learning tool in the classroom environment? And 3) Is there a significant correlation in the perceptions of classroom instructors when identifying levels of student engagement in the classroom, and levels of distractions caused by smart phones in the classroom? To seek adequate responses to these questions, two hundred survey questionnaires were distributed to full time faculty members followed by one-on-one interviews. However, in order to ascertain the significant correlation among the variables so as to measure the impact of smart phones use on the faculty member in a classroom setting, three hypotheses were generated from these questions and tested using statistical measures. Full-time faculty members are required by the university policy to provide 90% of their contract hours to the service of the students. That is why they formed the primary participants in this study. Consequently, part-time faculty members and university staff did not participate in this study.

Background

In order to ascertain the impact of smart phones in the classroom setting, studies that have direct correlation with the central focus of this study were examined. With respect to distractions, an important variable in research question one, Campbell (2006) argues in a study of mobile phone perceptions in the college classroom between faculty and students that distractions are a serious problem with ring tones going off when lectures are in progress. Findings from the study indicate that students are in support of a "formal" policy that could help address the situation and younger faculty members, especially, tolerate mobile phones in the classroom. This means that younger faculty members and students are moderate in their views. But a more recent study by

Levine, Waite and Bowman (2012) concludes that mobile phones constitute a distraction and thus affect learning adversely. These two studies favor some form of intervention because of what they term "impulsivity" and "distractibility" (p. 15). Positive intervention, in which case a faculty member sees the benefit of integrating these phones in the curricula can be beneficial, and seeing palpable effect on the students can resolve the issue of distractions enunciated in the study mentioned above.

Six years after Campbell's study, Levine et al.'s (2012) study underscores the need to resolve the overriding concern about distraction in the classroom. It means more intervention is needed to salvage the situation. According to Baker et al. (2012), students' reactions differ from faculty's reactions with respect to mobile phones and classroom perceptions. Students seem to tolerate in-class mobile phone use and particularly male students are more tolerant than female students. Therefore, an intervention may be tricky because gender disparity must be taken into account. That notwithstanding, to support the central focus of research question three, Williams and Pence (2011) found out that students could gain unlimited access to virtual libraries in the college classroom through their smart phones especially when there is the absence of wired or wireless network accessibility. According to them more Internet applications—commonly known as apps—can be created to accommodate the classroom environment. The downloading of applications on mobile phones could restrict physical distractions, but it does not necessarily resolve psychological distractions since the student is still prone to touching the phone during lecture. For example, McWilliams (2005, as cited in Kulesza, Dehondt II, & Nezlek, 2011) noticed this phenomenon that: "You can be in the front of the classroom and your hair could catch on [sic] fire and they'll never see it because their eyes are glued to the 14-inch screen at the end of their nose" (p. 7). This shows another dimension of mobile phones on the cognition of the students that affects their retentive memory (Litchfield et al., 2009). Thus, classroom management techniques to maximize the attention span of students in an environment replete with smart phones are worthwhile.

In a similar study mainly on student's distractions, Drozdenko, Tesch and Coelho (2012) focused primarily on graduate and undergraduate students. They found out that students would resort to mobile phones for distraction during a classroom lecture if the professor were difficult to understand. In this case, they use their smart phones as an escape mechanism to while away time as they anxiously wait for the class to end. In that same study, the researchers found out that graduate students were more "sensitive" to distractions than undergraduate students. This can be interpreted to mean that graduate students want to be more attentive during classroom lectures than undergraduate students. At the end of their study, they recommended physical separations of students so they cannot be distracted from the smart phone users, who for one reason or the other, may be bored or do not understand the lecture. If graduate students are more receptive than undergraduate students, then, a mechanism to resolve the apparent lopsidedness is worthy in academia.

Another viewpoint regarding smart phone, especially in regard to research question two, is the fact that they can be useful tools in the classroom. Milrad and Spikol's (2007) study titled, "Anytime, anywhere learning supported by smart phones: Experiences and results from MUSIS project" shows the positive effect that smart phones can create in the classroom. The fact that audio and video contents can be simultaneously transmitted through them could enhance any lecture. Additionally, students react positively when part of the course content is integrated with smart phone tools. These two authors also recommend more didactic methods that can be integrated with mobile phones. It is this didactic method that this study seeks to ascertain especially with those faculty members who welcome

smart phones into the classroom. Another dimension to this issue is also seen in the study by Wang et al., (2009). They conducted a similar study focusing on gender attitudes to mobile learning. According to them, M-learning is pivotal for the future, but they admit that acceptance is still a hindrance. They firmly believe that more research is needed to determine some of the impediments to its full implementation, more so as they uncovered gender differences as 'significant determinants'.

To support the stance of these authors, a study by Tremblay (2010) also examines some of the positive aspects of having students bring mobile phones into the classroom. In a study titled "Educating the Mobile Generation—using personal cell phones as audience response systems in post secondary science teaching," the author argues that cell phones used as a response system reduced students' boredom, and while their desire to use technology in the classroom increases, that of the faculty member also increases. This study may help to resolve some of the problems found in Drozdenko et al.'s (2012) findings that saw students resorting to mobile phones when they could not understand the professor and the lecture. Tremblay (2010) also found that student-to-students interactivity increases when students are allowed to use technology in the classroom. Thus, when technology—and in this case—mobile phones are integrated into the lecture, student-to-student interaction increases. So, in order to adequately respond to the research objective as stated above and to examine the bipolar views of smart phones and pedagogy, three hypotheses were tested for the study: **H1**: There will be a statistically significant difference in the perceptions of instructors of different ranks when comparing student smart phone usage and student level of distraction when using smart phones in the classroom environment; **H2**: There will be a statistically significant correlation between using smart phones as a learning tool and the classroom environment; and, **H3**: There will be a statistically significant correlation in the perceptions of classroom instructors when identifying levels of student engagement in the classroom, and levels of distraction caused by smart phone use in the classroom, based on instructor's rank.

THEORETICAL FRAMEWORK

The V-Shape Tunnel Model

This model has been generated as the framework to grasp the psychological role played by smart phones in the classroom setting between faculty and students. The V-Shape classroom tunnel
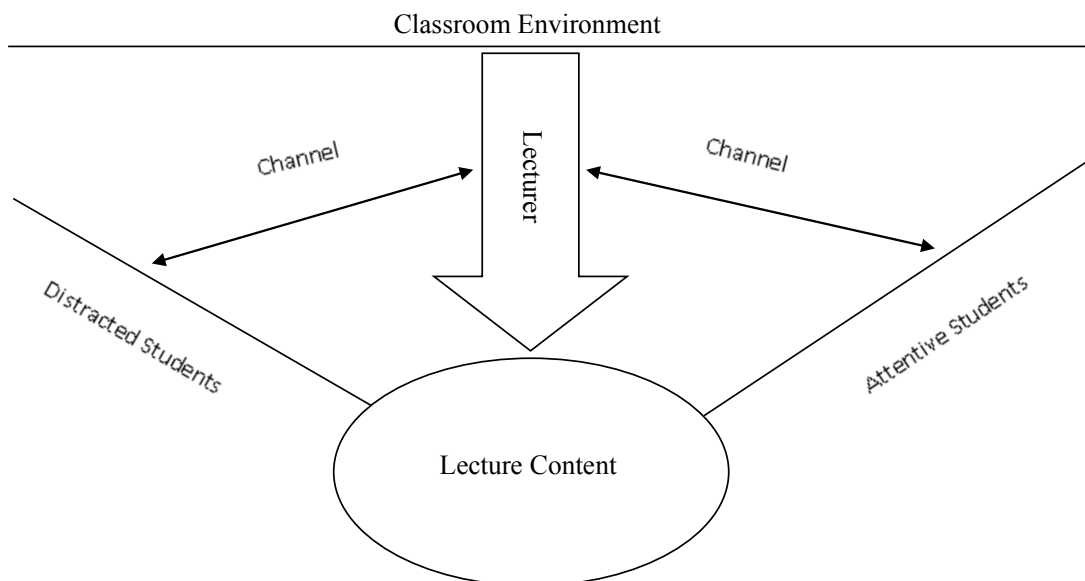

Figure 1. The V-Shape tunnel model.

model juxtaposes the two opposing constructs between distracted students and attentive students during classroom lecture. On the one hand, there are students with undivided attention to the lecture without smart phone distractions and on the other hand, there are students actively involved with mobile phones. The professor is at the center of the room delivering the lecture and the content flows to these two groups of students. The faculty member is faced with two types of distractions when it occurs: He/she temporarily is taken off guard and attends to distractions and the attentive students are also being distracted. In theory, the two groups of students are seated with each other but those who are attentive are psychologically removed from the impact of distractions emanating from the distracted students and are focused on the lecture. When the distraction is brought to their attention by the ring tones, message notification signals, fidgeting by the neighboring students, or the professor temporarily stops teaching to call out the distracted student(s), the attentive students are psychologically disconnected with the lecture. This V-Shape tunnel model typifies a classroom with moderate, liberal as well as conservative faculty member lectures. When smart phones are restricted (meaning banned completely), students still have them in their bags and sometimes they forget to turn them off completely or put them on vibrate. In this case the V-Shape model can still prevail. According to Moeller et al. (2012), a study on the campus of the University of Maryland titled "The world unplugged and 24 hours without media," students voluntarily gave up their phone for a 24-hour experiment. When they came back the next day, a majority of them reported various forms of stress ranging from boredom, loneliness and suicidal thoughts for not having their phones with them. Therefore, when faculty members banned mobile phones completely in their classroom and enforced the laws strictly, instances of distractions are bound to occur. When the minds of students wander off to the kind of text flowing into their absentee phones or an emergency

missed call they could be expecting, or according to Drozdenko et al. (2012), when the lecture is difficult to understand, they will look for other forms of distractions like dreaming, sleeping or hallucinating.

With respect to moderate and liberal faculty members who allow students to bring their mobile phones and put them on vibrate, the V-Shape tunnel model phenomenon is bound to occur when they fidget with texting, blogging or instant messaging. Those attentive students who want to get the best out of the lecture will be distracted as well as the professor. Perhaps the solution lies in physical separation of the students according to Drozdenko et al. (2012), but more research must be conducted to support their thesis. In the case where smart phones are used as a learning tool in the classroom, the V-Shape tunnel model merges to a straight shape tunnel model (see Figure 2) with all students actively engaged as shown in research by Tremblay (2010), Wang et al. (2009), and Williams and Pence (2011).
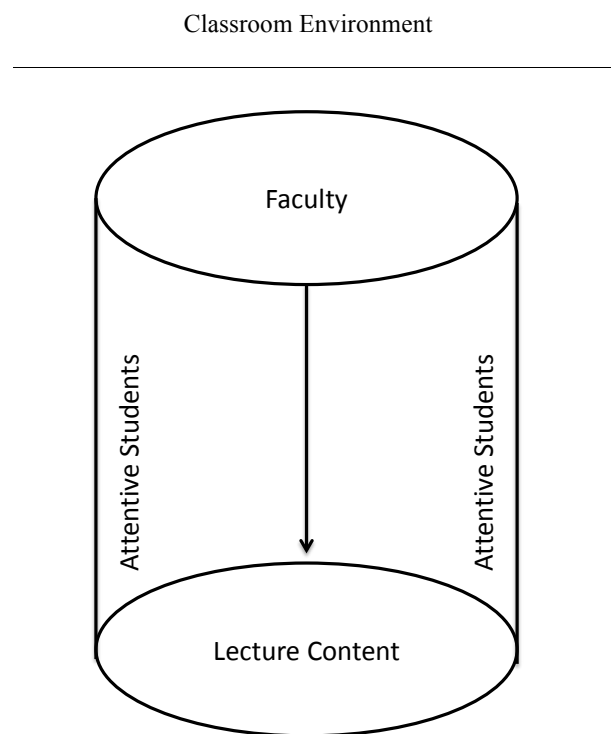
Classroom Environment

Figure 2. Straight-shape tunnel model

Methodology

This perception study necessitates a robust means of collecting data that can best represent the views of the faculty. Given the fact that ascertaining opinions of respondents can be replicated in the nearest future, this study obtained feedback from them through a pre-existing questionnaire. The close-ended survey gave an incomplete understanding of smartphones use in the classroom from a preliminary result presentation before faculty and students. It was recommended that we seek a much more detail explanation to supplement the numeric data. So participants' views were obtained through an in-person one-on-one interview. It was these interviews that clarity to the three hypotheses tests results made sense to the overall aim of the research problem of students' smart phones obsession in a classroom setting.

Over 200 survey instruments using a 5-point Likert-type pre-existing scale of 15 questions were distributed to faculty members in the various colleges in the university and 146 were received giving a response rate of 73%. Twelve of the responses were inadequately completed; and so this analysis is based on 134 complete responses.

A preexisting measurement scale developed by Incredible Years. Inc (Conduct Problems Prevention Research Group: CPPRG) was adapted for this study. It was originally meant to rate classroom atmosphere from the student's perspective. Given the purpose of this study was to gather information from a faculty perspective, the existing survey was slightly modified from a "student-focused" instrument to an instrument that could capture information from faculty in the classroom. No survey questions or available Likert-scale response options were altered in the process of adapting the survey to align it with the proposed audience of this study. A Cronbach's α was completed to determine the level of internal reliability of the surveys items. Testing revealed a Cronbach's α value of .62, which indicates a moderate level of internal consistency and reliability among the survey items. Here is the URL link to the original instrument (with permission from Incredible Years): http://incredibleyears.com/download/resources/teacher-pgrm/teacher-classroom-management-satisfaction-questionnaire.pdf.

Descriptive Analysis

The initial results from the survey open the floodgates for a follow up that prompted the researcher to draw a sample from the participants in the close-ended survey for a one-on-one interview. The SPSS generated a sample of 12 randomly selected faculty members of which eight were interviewed. They were asked to expand on their views on student-to-faculty distractions and student-to-student distraction on the other hand and having smart phones as a learning tool in their various classrooms.

One hundred and thirty-four (134) individuals responded to this survey. Of those who responded, 60 ($n = 134$, 45%) were male and 74 ($n = 134$, 55%) were female. Thirty-two ($n = 134$, 24%) of the respondents identified as having been employed at the university between one and five years. Alternatively, 42 ($n = 134$, 32%) of respondents identified as having between 15 and 25 years experience working as faculty at the university. When asked about their position/title, the most common response was "Assistant Professor." Assistant Professor comprised 49 ($n = 134$, 37%) of the responses to this question. The second most common response to this question was "Lecturer," at 32 ($n = 134$, 24%). Twenty (16%) Full Professors responded to the survey, as well as 22 (16%) Associate Professors and 11 (8%) Instructors.

Data Analysis

Research hypothesis one stated there would be a significant correlation between student use of smart phones and student distraction in the classroom environment, as perceived by the classroom instructor. An SPSS analysis of variance test was performed to test this hypothesis.

Test results showed a significant difference in the perceptions of faculty when comparing their responses regarding student use of smart phones and the level of distraction created by student use of smart phones ($F(4,132) = 2.76$, $p = 0.031$, $\eta^2 = 0.08$). This research hypothesis was supported. Research hypothesis two stated that there is a correlation between smart phones as a learning tool and the classroom environment. A SPSS chi-square analysis was performed to test this hypothesis. Test results indicated that no significant difference exists between instructors perceptions about how students are using smart phones in the classroom, whether as a learning tool or not (χ^2 (12, 127) = 14.33, $p = 0.23$, $\eta^2 = 0.57$). This research hypothesis was not supported.

Also research hypothesis three stated that there would be a significant correlation in the perceptions of classroom instructors when identifying levels of student engagement in the classroom, and levels of distraction caused by smart phone use in the classroom. An SPSS analysis of variance was performed on this hypothesis. Test results indicated that no significant difference exists when comparing instructor perception of levels of engagement and levels of distractions caused by smart phone use ($F(4, 127) = 2.38$, $p = 0.056$, $\eta^2 = 0.074$). This research hypothesis was not supported.

In-depth analysis of this data set, using SPSS crosstab testing, indicates that as the number of years of experience increases, the stricter the policy against smart phone usage in the classroom increases. For instance, 28 ($n = 132$, 21%) survey respondents, with 15 to 25 years teaching experience, indicated that they have a strict policy against the use of smart phones in their classrooms if their responses of very high and moderately high are combined. In contrast, only 13 ($n = 132$, 9.9%) survey respondents, with 10 to 15 years experience, indicated they have a strict policy against the use of smart phones in their classrooms. However, 25 ($n = 132$, 19%) survey respondents with one to five years of experience indicated that they have a strict policy to

smart phone use in the classroom. This result is similar to that of faculty members who have teaching experience from 15-25 years.

When comparing gender to the strictness of policy against smart phone usage in the classroom, there is a significant difference between male and female perceptions (χ^2 (4, 49) = 13.72, $p = 0.008$, $\eta^2 = 0.003$). Seventeen percent of male ($n = 133$, 22) and 20% of female ($n = 133$, 27) respondents indicated that they had a very strict policy against using smart phones in their classrooms.

SPSS crosstab analysis also indicates there is no significant difference in the number of years of experience and the perception that students are using smart phones as learning tools, (χ^2 (12, 127) = 14.3, $p = 0.28$, $\eta^2 = 0.42$). Additionally, no significant difference was found when comparing male and female responses regarding the perception of faculty that their students were using smart phones as a learning tool in the classroom (χ^2 (4, 10) = 6.06, $p = 0.19$, $\eta^2 = 0.21$).

As earlier indicated, in order to get a complete picture of why some faculty members prefer to strictly control smart phones in their classes, and others do not or rather use them for educational purposes, we conducted a one-on-one interview from a selected sample.

There were four themes that emerged from the coded sheet of the interview transcripts: smart phone policy, classroom comfort, distractions, and smart phone as a learning tool. The participants were made up of Lecturers, Assistant Professors and Full Professors. They were three males and five females.

Smart phone policy.
Faculty members were almost unanimous in their suggestions for a smart phone policy at the university. They complained of anger, frustrations and bitterness when students used smart phones as cheating tools or distracted their lectures. In fact, one female faculty member suggested a consistent policy for the university so she can be protected in case of litigations. Their desire to have

such a uniform policy would provide structure to class expectation especially when formulating their course syllabi. For instance, one of the female faculty members narrated an instance in her class when she seized the smart phones from a group of students who sat together during a quiz and labeled them and put them in a bag in front of the class. But she was still ill at ease during the entire class time because she was unaware of the rules and regulations in the school on matters like this. She then went on to say, "We need to do something with school policy on smart phones that will protect me when I tell them to put it away" (FFP1, interview script, 2012). This suggestion came about when asked about students complying with a smart phone policy stated on the syllabus for each faculty member. It was fascinating to note that a vast majority of them stated that the students knew from the beginning of the semester about the policy but chose not to comply. This prompted faculty to take different measures (banning smart phones completely, tolerating the vibrate features only, allowing sometime during the lecture for internet word search or 'blackboard' use) that are, by and large, engineered by individual choices.

Another female lecturer on this issue made these few observations during her classroom lecture when students failed to comply:

> Since they don't comply I have to take time off during class to tell them to pull the plug out of their ears and I say, " Can you please put your cell phones away?" Their use of smart phones take up time during class lecture if I have to stop the class every now and then to bring it to their attention to stop using smart phones. (FL1, interview script, 2012)

This is where the issue of distraction has a great psychological effect on the faculty member. The faculty member quoted above literally stopped teaching to address distractions emanating from smart phones. The students who probably are not

texting or listening to music on their head phones are equally affected by this distraction because the lecturer constantly interrupts the class to attract attention from distracted students. These are issues that would equally affect student retention in the long run. The time spent by faculty reminding the students to put their phones away because they fail to comply to policy on the course syllabi is a cause for concern because the lesson plan for that time slot may not be completed in a timely manner. This will subsequently affect not only student attention and retention but also the quality of lecture and the take home content as exemplified in the V-Shape tunnel model. This faculty member has a different style of dealing with distraction from the previous faculty who had to seize the phones all together. Another male faculty member on this theme said his students comply because he has included the smart phone policy in his syllabus as well as posted them on the walls of his classroom.

Comfort level in the classroom.
Those faculty members who integrate smart phones into their lecture reported a positive classroom comfort level. Even then some complained that a few of students go against the rule by silently texting but when that occurs they can easily spot them since they will notice their lack of participation. But others who are constantly faced with distractions said students who use smart phones in the classroom make their teaching experience "uncomfortable". This is what a male Assistant Professor said when asked this question: "I don't feel comfortable when students use smart phones sometimes during my lecture. I tolerate it under the conditions so that its use does not affect other students" (MAP2, interview script, 2012). The fact that he does not feel comfortable when they bring them to class and cannot stop them, but tolerates them only when their use does not affect other students needs further study. It is difficult for the faculty member teaching in front of the class to ascertain whether a student seated next to another using a smart phone is not distracting the

one paying attention to the lecture. However, his observation supports the findings of Baker et al. (2012) that students are more tolerant to in-class use of smart phones than faculty.

The comfort level of one other female faculty member is a cause for concern when dealing with smart phones in the classroom setting. She said, "A student was texting instead of taking down notes of my finals…It makes me angry because I am giving them my all" (FFP1, interview script, 2012). The fact that she got angry while teaching could create a tense atmosphere in the classroom and other students could feel the effect.

Distractions.

Almost all the participants in the interview except those who use smart phones as a learning tool in their classroom complained of distractions. Different forms of distractions were ascertained during the interviews. They said when the ring tones go off, there is disruption. This disruption according to them creates unpleasant distractions. As a result the classroom environment becomes noisy and uncomfortable for instruction. This female lecturer notices that there is something amiss when there is a sudden silence in the classroom when she is teaching. That is when she notices that maybe her smart phone policy is not being adhered to. So, she'd walk down the aisle to find out what is going on: "when I notice an eerie silence when I am teaching and when I walk around I notice that they are on their cell phones" (FL1, interview script, 2012). The eerie silence she is referring to comes about when she is in front of the class and since she is teaching in a laboratory with desk top computers, the students are taking advantage of the screen to place their heads downward and use their phones while she is teaching. When she walks around and notices that they are on their phones, she is being distracted and has to take time to address the issue. The entire lecture for that session can be disrupted by this type of student behavior.

One other female professor had this observation on distraction: "The students who disrupt my class are those who text message. They do it surreptitiously. Those who text message irritate me during lecture" (FAP3, interview script, 2012). This faculty member noticed that those who distract her during lecture do that 'surreptitiously' which is in line with female lecturer 2 (FL1) who complained of eerie feelings in class when students are on their smart phones. She says it irritates her, meaning that given the opportunity she will now allow them to bring the phones into the class in the first place.

Smart phone as a learning tool.

Few faculty members acknowledge that they do use smart phones in their classes as a learning tool. Those in the interview who said they do allow smart phones in their classes for learning purposes were females. Male faculty members opted for strictness in enforcing the rules of smart phone policy in their syllabi. One of the female faculty members who preferred smart phones in her classes made these observations:

> …We do use smart phones for instance when I say what does "loquacious" mean, and no one knows what it means then I would say pull out your phones. What does it mean? So we use it for that. They also do use it for blackboard. (FL2. interview script, 2012)

This female faculty member acknowledges the value and purpose of allowing smart phones in the classroom similar to the findings of Temblay (2010) who opined that using smart phones to spice up lecture can resolve the issue of boredom and also the findings of Dresdenko et al. (2012), whose findings revealed that students turn to their mobile phones when the lecture is difficult to follow. This faculty member has resolved these issues by letting the students turn to their phones to check the meaning of a term she has used in class. If they were not allowed to have their phones with them and allowed to check on the meaning of that term, they could have pretentiously

followed the lecture without understanding an important concept.

Another female faculty member who favors mobile phones in the classroom advance the thesis that all faculty members should integrate mobile phones into their curriculum in a more "innovative way." By innovation she meant looking for what works because she too has begun integrating smart phones into her curriculum. The third female faculty member who supports their use and whose reasoning is in line with FL2 brought another dimension into the discussion:

> The smart phones can also be a learning tool in the classroom. Occasionally when I tell them to google something say a colony. They don't know that America was part of a colony of England. If they don't understand what I am talking about, they can google about colonization. *But not everyone is at the same level yet. Some of these poor kids don't have all the tools yet* (my emphasis). (FFP1, interview script, 2012)

It should be recalled that this is the same female faculty member who seized the phones from a group of students and put them in a bag. For her to acknowledge a positive role that smart phones can play in the classroom indicate that flexibility by faculty members when it comes to mobile phones should be welcomed. Like FL2 who wants students to check out the word loquacious in class using their mobile gadgets, she too wants them to google the word colony because as she notices that some of her students do not know that the United States of America was part of the English colony. Three of these female faculty members introduce the element of functionality of smart phones in a classroom environment.

Conclusion

This study posited three hypotheses and three research questions. As already discussed the null hypothesis for H1 was rejected while the other two were not. The result of hypothesis one affirms that there is a significant correlation between smart phones use and classroom distractions similar to the studies of McWilliams (2005, as cited in Kulesza et al., 2011) and to some extent Drozdenko et al.'s (2012) findings. It should also be recalled that this result cut across gender and length of stay at the university. In fact, more females agreed that smart phones were a distraction in the classroom environment but when asked during the interview, more females favored smart phone use for learning purposes in the classroom. Their conflicting stance partly supports the assumptions of the V-Shape tunnel model concept that could eventually merge into a straight-shape model. In other words when does the V-Shape tunnel model become the straight model? It becomes possible when classroom student-to-student interactivity is heightened, confirming research by Tremblay (2010), Wang et al. (2009), and Williams and Pence (2011) about the importance of using smart phones as a learning tool in the classroom.

Another significant finding about this study relates to the positions and time spent by faculty members in the university. This study found that those who have been in the university from 10 to 25 years had stricter policy when dealing with smart phones in the classroom similar to those who have been at the university between 1-5 years. One would have thought that young faculty members would be tolerant to smart phones (i.e., moderate and liberal) than Associate and Full Professors. This study showed the contrary. They all maintain stricter policy in their syllabi with respect to mobile phones and female faculty members were stricter than male faculty members. There was a significant difference between male and female perceptions ($\chi^2 = 13.72$, $p < 0.05$). Seventeen percent of male ($n = 133$, 22) and 20% of female ($n = 133$, 27) respondents indicated that they had a very strict policy against using smart phones in their classrooms. But majority of the females admitted in the interview that they favor a broad university

smart phone policy to deal with strictness. They are using various methods to deal with it with varying degrees of success. That is why some advocated for responsible smart phone use as a learning tool in the interview. Lastly, the quantitative survey result of the study was confirmed by the qualitative interview findings.

References

1. Baker, W. M., Lusk, E. J., & Neuhauser, K. L. (2012). On the use of cell phones. *Journal of Education for Business, 87*(5), 275-289.

2. Ballagas, R., Borchers, J., Rohs, M., & Sheridan, J. G. (2006). The smart phone: A ubiquitous input device. *Persuasive Computing*, *5*(1), 70-77.

3. Campbell, S.W. (2006). Perceptions of mobile phones in college classrooms: Ringing, cheating and classroom policies. *Communication Education*, *55*(3), 280-294.

4. Drozdenko, R., Tesch, F., & Coelho, D. (2012). Learning styles and classroom distraction: A comparison of undergraduate and graduate students. *Proceedings of the 19th ASBBS Annual Conference, 19*(1), 268-277.

5. Kennedy, G. E., Judd, T. S., Churchward, A., Gray, K., & Krause, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australian Journal of Educational Technology, 24*(1), 108-122.

6. Kulesza, J., Dettondt II, G., & Nezlek, G. (2011). More technology, less learning? *Information Systems Education Journal, 9*(7), 4-13.

7. Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social media and mobile Internet use among teens and young adults. Retrieved from Pew Research Center Internet Project website: www.pewinternet.org/ Reports/2010/social-media-and-young-adults.aspx.

8. Levine, L. E., Waite, B. M., & Bowman, L. L. (2012). Mobile use, multitasking and distractibility. *International Journal of Cyber Behavior*, *Psychology and Learning, 2*(3), 15-29.

9. Litchfield, A., Raban, R., Dyson, L. E., Leigh, E., & Tyler, J. (2009). Using students' devices and a no-to-low cost online tool to support interactive experiential mlearning. *Proceedings of the Ninth IEEE International Conference on Advanced Learning Technologies,* 674-678. doi: 10.1109/ICALT.2009.198

10. McLane, S. (2012). What is it with these kids? A generational insight into students workers and customers. *Proceedings of the 40th Annual ACM SIGUCCS Conference,* 105-108. doi: 10.1145/2382456.2382481

11. Milrad, M. & Spikol, D. (2007). Anytime, anywhere learning supported by smart phones: Experiences and results from MUSIS project. *Educational Technology & Society, 10*(4), 62-70.

12. Moeller, S., Powers, E. & Roberts, J. (2012). The world unplugged and 24 hours without media: Media literacy to develop self-awareness regarding media. *Communicator, 20*(39), 45-52. *doi:103916/c39-2012-02-04*

13. Mulliner, C.R. (2006). Security of smart phones (Unpublished doctoral dissertation or master's thesis). University of California, Santa Barbara. Retrieved from http://mulliner.org/mobilesecurity/2006_mulliner_ MSThesis.pdf

14. Tremblay, E. (2010). Educating the mobile generation--using personal cell phones as audience response systems in post secondary science teaching. *Journal of Computers in Mathematics and Science Teaching, 29*(2), 217-227.

15. Wang, Y., Wu, M., & Wang, H. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British Journal of Educational Technology, 40*(1), 92-118.

16. Williams, A. J. & Pence, H. E. (2011). Smart phones, a powerful tool in the chemistry classroom. *Journal of Chemical Education, 88,* 683-686.