Mobile Culture in College Lectures: Instructors' and Students' Perspectives

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Abstract

The study explored college instructors' and students' attitudes towards the usage of mobile devices (laptops and cell phone), for non-academic purposes, during lectures. Students report excessive multitasking: usages of mobile devices for communicating with friends, gaming, etc. Instructors seem to have pretty good perceptions about the distribution of such usages. Most students accurately perceive the usage of mobile devices as disturbing instructors and peers, but they still believe such usage is legitimate! Instructors, on the contrary, feel it is not. Older students, as well, tend to think the usage of mobile devices during lectures is illegitimate. Results are discussed from the perspective of McLuhan's laws of media, and from perspectives related to millennial students' unique characteristics.

Keywords: Multitasking, Mobile devices, Higher Education, Students' and Instructors' Attitudes

Introduction

A person who has been away from modern civilization for the last 30 years would probably feel curious about some cultural changes: When walking into the doctors' clinic the doctor might hardly look at him and instead ask for the magnetic card and start to interact with his computer. When walking into a restaurant a family might be dinning while 3 out of 5 members are speaking on their cell phones. While dating, his partner might be constantly reading immediate cell phone messages. When visiting a college classroom lecture a considerable number of students might be using their laptops to check e-mail or use their cell phones to play games or send SMS. Obviously, things have changed. One might claim that every new technology has its' drawbacks; however, the way mobile technologies are used seems to frustrate a very basic human need – the need for exclusivity (Bowlby, 1999). We expect a doctor or a date to pay exclusive attention to us. An instructor and (at least) some of her students expect everyone to pay exclusive attention to a class discussion or to the lecture. The massive violation of these expectations in the new mobile college culture is quite bothersome (Young, 2006).

To what extend did mobile culture penetrate college classrooms? In a recent study, Fried (2008) had students complete a weekly survey, throughout a whole semester, related to the ways they used laptops is a psychology course (n=128). The course was based on lectures with no laptop activities utilized in any organized fashion by the lecturer. About 64% of the students reported

using their laptops at least during one class period. Those who used laptops used them, on average, about half of the class period. Users reported that about 50% of the time they used the laptops - it was for non-academic activities. In other words, close to 25% of the lecture time was spent by students, using their laptops to do other things then taking lecture notes. Similarly, in a large survey (n=1,162) conducted among American college students, one third of the students surveyed admitted using their laptops and cell phones playing games that were not part of the instructional activities during classes (Jones, 2003). These figures seem quite disturbing.

There is a long tradition in cognitive science studies that demonstrate that human mental resources are limited and that there is a performance decrement under divided attention conditions (Roda & Thomas, 2006; Gopher, 1993; Kahneman, 1973; Craik & Lockhart, 1972; Posner, 1982). However, one might suggest that current students are 'digital natives', who are savvy and efficient multitaskers, thus their academic performance shouldn't necessarily be compromised by using laptops during lectures. A study conducted by Hembrooke and Gay (2003) tried to address such claims. The study took advantage of a project where all students were issued laptops. Students (n=44) were randomly assigned, during a communication course class, to two experimental conditions: an 'open laptop' vs. a 'closed laptop'. At the end of the class students took a recognition and recall quiz. The 'closed laptop' condition outperformed the 'open laptop' one. Moreover, students who used their laptops to look for lecture related materials did not do better than their friends who used the laptops for non-academic purposes. Fried (2008) reports similar results – she found a negative correlation between the amount of time students reported using their laptops during the psychology lectures throughout the semester and their final grade. Moreover, when asked, at the end of the course, what were the factors that might have interfered with their ability to learn lecture materials laptop use by fellow students - was the single most reported distracter, followed by the interference caused by one's own laptop use. Hembrooke and Gay's (2003) and Fried's (2008) studies suggest, therefore, that laptop multitaskers pay an academic price for their use to these technologies.

The claim that laptops distract students and impair their academic performance refers to classrooms where laptop activity is not directly relevant to academic needs. Obviously, when laptop activities are pedagogically integrated into the course, for instance, when communication between students is required in a web-based collaborative activity – laptops could provide enormous advantages. Under such circumstances there is evidence that laptop activities can increase engagement, active learning and meaningful interaction among students and between them and the instructor (e.g., Driver, 2002; Barak et al., 2006; Demb et al., 2004; Gay et al. 2001). Decrease in academic performance due to off-task multitasking refers, therefore, mainly to non-structured use of laptops during lectures.

Despite the zeal related to laptop programs and the so called ubiquitous computing environments (Weaver & Nilson, 2005; Brown & Petitto, 2003) there are accumulating reports about instructors banning laptop use in their classes and university authorities devising 'internet kill' switches in order to provide instructors with effective means to monitor laptop usage (Mangan, 2001; Melerdiercks, 2005; Olson, 2002; Schwartz, 2003; Young, 2006). Young (2006) describes professors worrying that "as wireless networks and laptops become ubiquitous, students will direct about as much attention to the front of the room as airline passengers do to a flight attendant reviewing safety information" (p.A27). He describes professors feeling frustrated by not being able to have eye contact with students or by the lack of opportunity to perceive students' attention signals and to react accordingly (e.g., speed up, slow down, offer another example). Yet, other professors believe that banning laptops is wrong since students should develop self-monitoring skills and should learn how juggle online and offline worlds, a challenge they will face later on throughout their careers. In addition, some professors feel that the quality of instruction is to

blame if students are seeking distraction online, and in any case it is instructors' responsibility to set proper boundaries regarding what is acceptable behavior in their classrooms.

None of the studies mentioned above explored systematically instructors' perspective on the use of laptops and cell phone in their classroom. Our study explored studetnts' and instructors' attitudes and beliefs regarding non-academic usages of mobile devices during lectures.

The Study

Our study aimed to assess the prevalence of non-academic usage of mobile devices during lectures. We wanted to know what exactly students do when using their laptops and cell phones during lectures. In addition, we wanted to know how they feel about non academic usage of mobile devices, how legitimate they believe it is, and what do they think their instructors think and feel about it. Finally, we wanted to know what instructors believe students are doing, how they feel about it and what do they do about it.

The study was carried out in a technological college offering wireless connection all around the campus. 127 students (ages 20-41) and 30 instructors from four different departments (Instructional Technologies, Computer Science, Technology Management and Electronic Engineering) filled in a questionnaire addressing their practices and views on using laptops and cell phones during lectures.

Findings

About half of the students in our sample own laptops and use them in class and *all* own cell phones.

Use of Mobile Appliances during Lectures

Most of the students who own laptops (91%) reported that they use them during classes for activities that are not related to the lesson, while 25% said that they *always* do so. The distribution of the activities is presented in Table 1.

Table 1. Use of portable computers during lectures (%)

Laptops	Lesson summary	e-mail	Games	Instant messaging	Social networks	Homework for another course	Web surfing
Students' reports	97	85	74	60	46	31	30
Instructors' estimate	90	89	73	66	53	43	30

Cell Phones	SMS	SMS within the class	Reply to calls	Initiate calls	Games	Web surfing
Students' reports	93	38	22	6	28	19
Instructors' estimate	87	-	63	13	33	-

It seems that instructors have a realistic and accurate perception of the activity carried out by students with the mobile devices during their lectures (Table 1). Students too believe that the instructors are usually aware of what they are doing with their computers (17% – always, 77% – sometimes).

As to cell phones: most of the student (93%) report that their cell phones are on "quiet mode" 6% leave them open and less than one percent completely shut down ! This behavior might not be surprising when compared to their behavior when attending a public show (movie or theater): **none** would leave it open (not socially accepted) but only five percents would shut it down completely ("fear of not being connected.."). Most students (83%) state that they try to hide their activity with the cell phone from the instructor. About half of the students (46%) state that they would answer calls that are not urgent and when doing so they leave the class (94%).

Students state that they use their portable devices for other, non related activities when they are bored (portable computer – 97%, cell phone – 74%).

Students' and Instructors' Views

The main "paradox" surfaces from the data presented in Table 2. Students' and instructors' views on the harmful effects of using portable computers for other activities during lessons seem to be quite similar. Nevertheless, their attitude regarding the legitimacy of such action is very different.

Table 2. Students' and instructors' views (%)

Using portable during lectures for other activities:	Students (%)	Instructors (%)
may distract students' attention	90	90
may disturb other students	44	97
disturbs the instructors and the course of the lesson	57	82
reflects disrespect for the instructor	71	59
is legitimate	**75**	**23**

Since mobile culture emerged only in recent years we thought it might be interesting to see if perceptions regarding its' legitimacy is related to age (Figure 1).

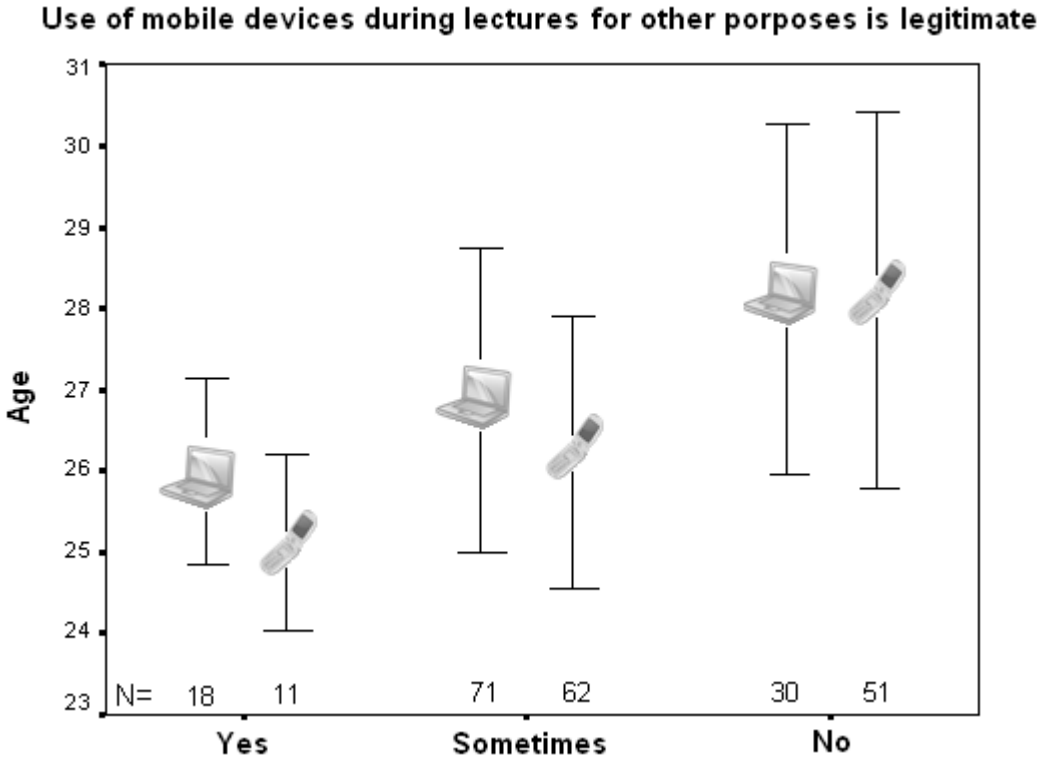

Figure 1. Perception of legitimacy by students' age (mean, STD)

There seems to be a clear relation between students' age and their views on the issue of legitimacy of using portable devices during lectures for non-academic purposes. The correlation between views regarding legitimacy and age found for cell phones was significant (r=0.22, p=0.008) and for laptops marginal (r=0.145, p=0.058) while, as expected, both views were significantly correlated (r=0.3, p=0.004). Students' opinions regarding the legitimacy of mobile devices usage during class was not found to be related to owning laptops.

Instructors' Reactions and Actions

Tables 3-4 present the summary of the instructors' attitudes to the use of portable devices during class.

Table 3. Instructors' attitude toward the use of laptops during class

To the use of portable computers during lessons:	%
Encourage students to use them	7
Allow according to lesson's topics	44
Do no refer to this issue	21
Prefer that students would not use	21
Forbid	7

Table 4. Instructors' reactions

When students use portable devices during lectures for other purposes I	Laptops	Cell phones
don't mind	7	17
do mind but have no choice but to accept it as part of the reality	43	24
try to focus the attention of the other students	33	31
ask to stop the activity and to focus on the lesson	10	10
demand to shut down the device immediately	7	17

Discussion

Similar to previous studies (Fried, 2008; Jones, 2003), our findings suggest that students use laptops and cell phone quite intensively for non-academic uses during lectures. In addition, instructors in our study seem to have accurate estimations regarding the distribution of usages, e.g., communication, gaming, etc. However, while instructors believe that usage of mobile devices, during lectures, is illegitimate - most students believe it is! Older students tend to share instructors' attitudes and perceive the non-academic usage as illegitimate.

Class management and 'discipline problems' are hardly new phenomena in higher education (e.g., Lake, 2009). It is quite reasonable that College students might experience learning, at times, as compulsory, frustrating, boring, or irrelevant, and behave accordingly. However, it seems that mobile culture has changed students' and instructors' expectations. Whereas in the past, probably most students would believe that reading the newspaper or listening to a walkman during a lecture is rude and illegitimate, our study indicates that their attitudes towards the usage of mobile devices are different. Moreover, while most instructors would ban newspaper reading or walkman listening and treat it as a discipline problem, our results indicates that instructors seem to be more hesitant and ambivalent regarding mobile devices. It seems that social conventions are rapidly changing. Mobile culture has heavily invaded college classrooms. More and more young students might feel it is their right to be 'multitaskers' during lectures, and instructors might be quite confused about it. These tendencies will probably increase as mobile culture and multitasking become even more ubiquitous then it presently is.

McLuhan (1988) pointed out that any new technology or media has undesirable effects. His four laws of the media, also known as the tetrad, explicitly illuminates how any given medium will amplify, obsolesce, retrieve and reverse some other medium or human faculty. According to McLuhan, in order to disclose the hidden effects of any new technology or media one should ask four questions:

1. What does the medium enhance or intensify?
2. What does it render obsolete or displace?
3. What does it retrieve that was previously obsolesced?
4. What does it produce when pressed to an extreme?

Laptops and cell phones seem to be technologies that have obvious and regrettable side effects. Table 5 presents a tentative tetrad for these technologies:

Table 5. Effects of mobile technologies

1. Enhances	3. Retrieves
▪ being 'connected' at all times ▪ having immediate access to information ▪ multitasking	▪ some sense of community ▪ some sense of geographical closeness ▪ playfulness ▪ regression, egocentricity, self-centeredness, inconsideration
2. Obsolesces	**4. Reverses into**
▪ newspapers ▪ telephones ▪ face to face contacts	▪ being constantly distracted ▪ constant need for external stimulation ▪ shorter attention span ▪ difficulty to maintain close and intimate relationships

Such possible answers to MaCluhan's questions suggest that, indeed, as laptops and cell phones become ubiquitous in campuses – the price might augment.

One of the most interesting finding of our study is a sense of *cognitive dissonance* that emerges from the majority of young students' self reports. On the one hand they accurately realize that using cell phones and laptops disturb their instructors, who might feel disrespected, and at the same time distract themselves and their friends. Yet, many of them, unlike their older peers, feel that such a usage is legitimate. Cognitive dissonance theory (Festinger, 1957) predicts that when a behavior is dissonant to a belief, people would tend to abandon the behavior or, alternatively, alter the belief. In other words, we would expect students to drastically reduce the usage of these devices during lectures, or, alternatively, use rationalizations such as 'Yes, I do use my laptop for other purposes during lectures, but since it doesn't really bother my instructors, my behavior is legitimate'. Perhaps, millennial students, as compared to previous generations, are more relaxed regarding internal conflicts and are less anxious to reduce internal tensions caused by dissonance.

Millennial students (born between 1981-2000) are described as team-oriented, multitaskers who have zero tolerance for delays and a strong urge of staying connected at all times (e.g., Frand, 2000; Oblinger, 2003; Rickers, 2009). In addition millennials are described as having good relationships with their parents who cherished their self-esteem and have been praising them even for modest accomplishments, treating them as special and important. As a result, millennials are believed to carry a sense of entitlement about them (Strauss & Howe, 2003).

These characteristics might explain why the excessive usage of laptops and cell phones for non-academic purposes during lectures is not accompanied by guilt or by active attempts to reduce cognitive dissonance.

Nevertheless, some of our millennial students reported feeling uncomfortable with their usage of laptops and cell phones during lectures and described their behavior as "addictive": they reported they find it hard to control the compulsive urge of constantly checking for messages, news, etc. In fact, they asked for help... It seems, thus, that at least some students would enjoy clear rules regarding the usage of mobile devices in class. However, educators such as Lake (2009) believe that when dealing with millennial students new disciplinary approaches are required. Lake believes that since millennials possess a sense of entitlement, they do not respond well to standard, complex, procedural requirements. Thus, he recommends that colleges and universities should avoid one-size-fits-all standardized discipline codes, stop placing so much emphasis on sanctions – and instead, create more flexible and situated rules, based on rewards rather than panishment, and 'enforced' by having each student assigned to long termed mentors. Lake's (2009) recommendations reflects some of the intricacies that instructors might face when dealing with millennials' disciplinary problems in general, and with problems related to the invassion of mobile culture into the classroom, in particular.

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