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Digital Distractions in the Classroom:
Student Classroom Use of Digital Devices for Non-Class Related Purposes

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Abstract

Digital devices such as smart phones, tablets, and laptop computers are important college classroom tools. They support student learning by providing access to information outside classroom walls. However, when used for non-class purposes, digital devices may interfere with classroom learning. A survey study asked college students to describe their behavior and perceptions regarding classroom use of digital devices for non-class purposes. The respondents included 777 students at six U.S. universities. The average respondent used a digital device for non-class purposes 10.93 times during a typical school day for activities including texting, social networking, and emailing. Most respondents did so to fight boredom, entertain themselves, and stay connected to the outside world. More than 80% of the respondents indicated such behavior caused them to pay less attention in the classroom and miss instruction. A majority of respondents favor policies governing digital device distractions in the classroom.

Introduction

The past decade has seen steady growth in student use of digital devices (smart phones, laptops, tablets, etc.). The devices allow users wider access to information and people. As more students use digital devices, research shows their use is causing more classroom learning distractions.

Rainie (2012) found that smart phones are particularly popular with young adults: 66% of students 18-29 own a smartphone. Experian Marketing Services (2013) found 18-to-24-year-olds used smart phones to send and receive an average of 3,853 text messages a month. A Deloitte survey (2013) found the 14-23 age group had the highest rate of laptop adoption in the United States at 84%, the second highest rate of smartphone adoption at 70%, and the second highest rate of tablet adoption at 43%.

In classroom settings, digital devices used as educational tools have also seen growth. Gray, Thomas & Lewis (2010) found Internet access available for 93% of the computers found in classrooms. Smith, Rainie & Zickuhr (2011) found nearly 100% of college graduate and undergraduate students had Internet access. Ninety-two percent of undergraduates and 88% of graduate students connected to the Internet via wireless cell phones, laptops or tablets.

There are drawbacks associated with digital devices used in the classroom as well. Richtel (2012) reported a belief among teachers that constant use of digital technology hampered their student's attention spans and ability to persevere in the face of challenging tasks. A Common Sense Media (2012) survey of teachers found 71% of teachers thought technology hurt student attention span "somewhat" or "a lot." About 60% of surveyed teachers said it hindered students' ability to write and communicate face to face. Purcell, et al. (2012) found sharply diverging teacher views in a survey they conducted. Seventy-seven percent of teachers they surveyed thought the Internet and search engines had a "mostly positive" impact on student research skills. However, 87% of the respondents believed digital technologies were creating "an easily distracted generation with short attention spans," and 64% said digital technologies did "more to distract students than to help them academically."

Students have also identified learning distractions caused by digital technology. Froese (2012) had students participate in a mock-classroom where they watched a PowerPoint presentation followed by a 10-question quiz. Half the students engaged in active text conversations, while the others were not. Froese's team calculated a 27% drop in student scores due to texting. Rubinkam (2010) wrote about a Wilkes University survey that found 10% of students sent or received texts during exams. Campbell (2006) found students and faculty generally reported negative attitudes about mobile phones in college classrooms with ringing as a serious source of irritation and distraction for respondents.

Findings such as these may not be surprising given other research involving human behavior and the use of digital technology. Ophir, Nass, Wagner, Anthony & Posner (2009) noted society's increasingly saturated media environment means more people are consuming more than one content stream at the same time. Ophir told Thomas (2009) the human mind is not really built for processing multiple streams of information. Foerde and Poldrack (2006) found people had a harder time learning new things when their brains were distracted by another activity. In classroom settings, Wei, Wang and Klausner (2012) found texting during class partially affected a students' ability to self-regulate their attention to classroom learning. In an earlier study, Wei and Wang (2010) noted college students' ability to text and perform other tasks simultaneously during class might become a habit over time. Such habits may be defined as automatic behaviors triggered by minimum consciousness.

Previous research indicates that non-classroom use of digital devices by college students causes learning distractions in classrooms (Froese, 2012; Campbell, 2006; Wei, Wang & Klausner, 2012; Wei & Wang, 2010). Building from prior research, the purpose of this survey study was to examine how college students use digital devices in classroom settings for non-classroom related

purposes. What impact does such behavior have on student learning? What are the perceived advantages and disadvantages of this behavior, and what policies might effectively limit classroom distractions caused by digital devices?

Methods

In the fall semester of 2012, a sampling of 777 students at six U.S. universities was asked 15 survey questions about their classroom use of digital devices for non-class purposes. Respondents included freshmen, sophomore, junior, senior, and graduate students who attended college in Nebraska, Kansas, Iowa, North Carolina, and Mississippi. Most respondents majored in mass communications, but the survey also included students from marketing, business, education, and agriculture majors. Instructor observations of college students in classroom settings, a baseline survey of students, conversations with instructors at other U.S. colleges, and a literature review suggest student classroom uses of digital devices for non-class purposes causes learning distractions. This launched a research agenda focused on studying student classroom uses of digital devices for non-class purposes, and the effects such behavior may have on classroom learning.

The survey addressed the frequency and intensity of non-class related digital distractions in the classroom, advantages and disadvantages of using digital devices for non-class purposes, what instructors should do to address digital distractions in the classroom, and if a need exists for formal policies to address digital distractions in the classroom. Nine of the survey's 15 questions presented respondents with a list of answers to choose from in addition to an "other" open-answer response.

Some pre-determined responses were developed from a 2012 pilot survey of undergraduate mass communications majors (N=95) at a midwestern university. The pilot survey identified frequent types of non-class related digital device use in classrooms.

Institutional Review Board approval was obtained before the survey's administration. It included a cover page statement informing students that the survey's completion and submission constituted their consent to participate in the study.

Respondents were recruited by classroom instructors via email and personal contact in the fall of 2012. All respondents were given the option to complete the survey or not. The survey did not ask respondents to state their name or institution, but the researcher identified colleges and universities respondents attended via Internet Protocol (IP) routing addresses associated with survey responses.

Using SurveyMonkey.com as a data collection tool, quantitative data results were compared statistically and by respondent gender, age, and year in school. The analysis also looked at the frequency of responses.

Results

The survey's quantitative frequencies results are presented first, followed by a comparison analysis.

Quantitative Results

Table 1 shows results for the fifteen question survey. Students were asked how often they used a digital device during classes for non-classroom related activities on a typical school day. Of the responses, 34.9% chose "1 to 3 times" as a response, followed by 26.8% who chose "4 to 10 times." The remaining student responses included 15.7% who chose "11 to 30 times," 14.8%who chose "More than 30 times," and 7.9 percent who chose "Never." **DigiDistractions_Q1.pdf**

When we asked students how they used digital devices during class for non-class purposes, "Texting" was the top response at 85.9%. It was followed by "Checking the time," at 79%, "E-mail" at 67.9%, "Social Networking" at 66%, "Web surfing" at 38%, "Games" at 8 percent, and "Other" at 4.4 percent. **DigiDistractions_Q2.pdf**

Students were asked to choose the three biggest advantages and three biggest disadvantages to using digital devices in class for non-classroom purposes. The top response for biggest advantage was "To stay connected" at 69.8%. It was followed by "Fight Boredom" at 55%, "Related classwork" at 49.4%, "Entertainment" at 49.1%, "In case of emergency" at 41% and "Other" at 5.2 percent. The biggest disadvantage to using a digital device in class for non-classroom purposes was "Don't pay attention" at 89.8%. It was followed by "Miss instruction" at 80.4%, "Distract others" at 39.4%, "Get called out by instructor" at 32.1%, "Lose grade points" at 26.6%, and "Other" at 1.7 percent. **DigiDistractions_Q3.pdf & DigiDistractions_Q4.pdf**

We asked students to identify how much of a distraction was caused by other student's use of digital devices during class for non-classroom activities. "A little distraction" was the leading choice at 52.2%. It was followed by "No distraction" at 33%, "More than a little distraction" at 10.1%, "Big distraction" at 3.1 percent, and "Very big distraction" at 1.6 percent.

DigiDistractions_Q5.pdf

When asked to choose how much of a distraction was caused by their own use of digital devices during class for non-classroom activities, the top response was "A little distraction" at 45.7%. It was followed by "No distraction" at 37.5%, "More than a little distraction" at 12.1%, "Big distraction" at 3 percent, and "Very big distraction" at 1.7 percent. **DigiDistractions_Q6a.pdf**

Question 7 asked respondents to choose the types of distractions caused by the use of digital devices during class for non-class activities. "Visual activity" was chosen by 67.6% of the

respondents, followed by “Audio activity” at 37.1%, “It’s not a distraction" at 16.3% and “Other at 1.5 percent. **DigiDistractions_Q7.pdf**

Students were asked if their instructors have a policy regarding the use of digital devices in their classrooms. “Yes” was chosen by 70% of the respondents, followed by “No” at 30%.

When asked if there should be a policy on digital distractions in the classroom. “Yes” was chosen by 53.7% of the respondents, followed by “No” at 46.3%.

When asked if digital devices should be banned from classrooms, 91.2% of the respondents said “No,” and 8.8 percent said “Yes.” **DigiDistractions_Q8.pdf & DigiDistractions_Q9.pdf & DigiDistractions_Q10.pdf**

When asked what an instructor should do if a student causes a disruption by using a digital device for non-class purposes, 71.8% chose “Speak to student.” Other responses were “Ask student to leave class” at 16.6%, and “Confiscate or turn-off device” at 11.7%.

DigiDistractions_Q11a.pdf

We asked students which policy they would favor most for students caught using digital devices in the classroom for non-class purposes. “Warning on first offense followed by penalties “was the leading response at 65.3%. It was followed by “No warnings or penalty” at 31.2% and “Penalty each time it happens” at 3.5 percent. **DigiDistractions_Q12.pdf**

The last three questions were demographic in nature. Females accounted for 63.2%, and males, 36.8% of survey respondents. Among the respondents, 34.3% said they were 18-years-old, 26.3% said they were 19-years-old, 16.7% were 20-year-olds, 15.9% were 21-year-olds, and 6.8 percent of the respondents were 22-year-olds. College freshmen accounted for 39.9% of the students, followed by sophomores at 24.8%, juniors at 15.6%, seniors at 17.4%, graduate

students at 3.3 percent and 3.3 percent for "other." **DigiDistractions_Q13.pdf & DigiDistractions_Q14.pdf & DigiDistractions_Q15.pdf**

Comparison Analysis Results

Table 2 shows a comparison analysis of selected questions. Question 1 comparison analysis indicates undergraduates (N=741) were more likely to use digital devices than graduates (N=25) during daily classes for non-class activities (92.53% vs. 72%). INSERT able 2 Comparative Analysis Question One a.pdf

When overall frequency response rates were averaged ((1+3)/2=2, (4+10)/2=7, (11-30)/2=20.5, 35) and added for each school year, undergraduates used a digital device an average of 11.16 times each day in classes for non-class related activities compared to an average of 3.90 times each class day for graduate students. Combined, undergraduate and graduate students used a digital device an average of 10.93 times each class day for non-class activities.

Question 2 comparison analysis indicates females (N=459) were more likely than males (N=257) (20.36% vs. 17.13%) to use digital devices for non-class related social networking. Males were more likely than females (13.31% vs. 9.9%) to use digital devices for non-class related web surfing and (3.24% vs. 1.74%) playing games.

Comparison analysis on Question 5 between females (N=482) and males (N=279) indicate females were more likely than males (69.7% vs. 62.4%) to list some level of distraction caused by another student's use of digital devices during class for non-class activities. INSERT Table 2 Question 5.pdf

Comparison analysis on Question 6 (female N=485, male N=278) indicate females were more likely than males (64.9% vs. 57.94%) to list some level of distraction caused by their use of digital devices during class for non-class activities. INSERT Table 2 Question 6.pdf

Comparison analysis on Question 11 (female N=453, male N=255) indicate females were more likely than males (73.73% vs. 60.02%) to favor an instructor speaking to a student causing a class disruption by using a digital device, and less likely than males (14.13% vs. 20.39%) to favor an instructor asking a student to leave class if they cause a disruption by using a digital device. INSERT Table 2 Question 11.pdf

Discussion

When college students multi-task with digital devices in classrooms, research indicates it may hamper their ability to pay attention. This behavior, research suggests, has become more habitual, automatic, and distracting. This study of college students further defined the dynamic relationship between digital device use that promotes, and digital device use that distracts from classroom learning. It found most students favor policies that may better define and limit learning distractions caused by digital devices in classrooms. INSERT GIRL TEXTING IN LECTURE HALL HERE

Distractions of this nature were previously identified by Froese (2012), Campbell (2006), and Wei, Wang and Klausner (2012). This study attempted to further quantify the frequency with which students used digital devices for non-class activities while in the classroom. This study's results expanded on previous findings by identifying non-classroom purposes a large majority of college student respondents use digital devices for during class. These activities included texting (85.9%), emailing (67.8%), and social networking (66%). Respondents said three leading advantages for engaging in the non-class related behavior was to stay connected (69.8%), to fight boredom (55%), and for entertainment (49.1%). Respondents said such behavior during class caused them to not pay attention (89.8%) and miss instruction (80.4%). When asked what kinds of classroom distractions are caused when digital devices are used for non-class activities, the

most common reply (67.6%) was visual distractions, followed by audio distractions (37.1%). Only 16.7% of the respondents indicated the use of digital devices for non-class activities was "not a distraction."

On the frequency of digital device distractions in the classroom: A comparison analysis indicates graduate students are much less likely to use digital devices for non-class purposes than undergraduates (3.38 vs. 7.81 times a day). A limitation of this result is the small sample of graduate student respondents.

This survey noted that when the respondent used a digital device for non-classroom activities, 62.5% said such behavior caused some form of classroom distraction, mostly (45.7%), a "small distraction." When another student's use of a digital device was involved, 67% of the respondents said it caused some form of classroom distraction, mostly (52.2%), a "small distraction."

A majority (53.7%) of respondents (N=769) favor policies limiting classroom distractions caused by digital devices. This suggests students may be receptive to better clarity on appropriate and inappropriate classroom uses of digital devices while largely opposing (91.2%) classroom bans on digital devices.

These results are supplemented by research by Rainie (2012), Deloitte (2013), and Experian Marketing Services (2013), that indicate 18-to-24-year-olds are among the most frequent digital device users. These trends, research indicates, will likely continue to grow and should qualify for future research, especially qualitative research, to better identify motives and perceptions driving respondent behavior. Other research might measure and compare the frequency, type, time length, and impact of classroom digital distractions before and after policies designed to limit classroom learning distractions are implemented. Future research might also compare larger

samples of graduate students with undergraduate students to see why classroom distractions caused by digital device use may become less frequent as students grow older.

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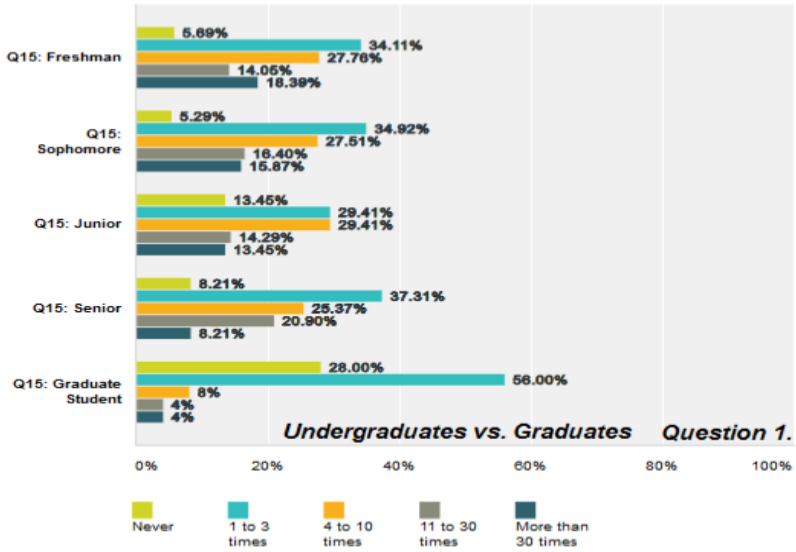
Table 2- Comparative Analysis: Digital Distractions in the Classroom

On a typical school day, how often do you use a digital device during classes for non-classroom related activities such as texting, talking on a smart phone, emailing, surfing the Web, tweeting or social networking?

Answered: 766 Skipped: 3



If you use a digital device during class for non-class purposes, please describe those purposes.

Answered: 716 Skipped: 51

	Texting	Social Networking	Email	Web surfing	Check the time	Games
Q13: Female	25.09% 403	20.36% 327	19.68% 316	9.90% 159	23.23% 373	1.74% 28
Q13: Male	24.65% 213	17.13% 148	19.33% 167	13.31% 115	22.34% 193	3.24% 28

Female vs. Male, Question 2

Table 2- Comparative Analysis: Digital Distractions in the Classroom

How much of a distraction is caused by other students who use digital devices during class for non-class activities?

Answered: 761 Skipped: 6

	No Distraction	A little distraction	More than a little distraction	Big distraction	Very big distraction	Total
Q13: Female	30.29% 146	55.39% 267	8.92% 43	3.53% 17	1.87% 9	482
Q13: Male	37.63% 105	46.95% 131	12.19% 34	2.51% 7	0.72% 2	279

Female vs. Male, Question 5

How much of a distraction is caused by your use of digital devices during class for non-class activities?

Answered: 763 Skipped: 4

	No Distraction	A little distraction	More than a little distraction	Big distraction	Very big distraction	Total
Q13: Female	35.05% 170	47.01% 228	12.58% 61	3.92% 19	1.44% 7	485
Q13: Male	42.09% 117	43.17% 120	11.51% 32	1.08% 3	2.16% 6	278

Female vs. Male, Question 6

What should the instructor do if a student causes a disruption by using a digital device for non-class purposes?

Answered: 708 Skipped: 59

	Speak to student	Ask student to leave class	Confiscate or turn-off the device	Total
Q13: Female	73.73% 334	14.13% 64	12.14% 55	453
Q13: Male	69.02% 176	20.39% 52	10.59% 27	255

Female vs. Male, Question 11.