Law Student Laptop Use in Class for Non-Class Purposes: Temptation v. Incentives

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Introduction

When the creators of the children’s television show Sesame Street wished to know whether pre-schoolers would actually watch it, their head of research, Ed Palmer, set up a room with a television monitor showing segments from the show.1 On a nearby screen, Palmer projected slides of various images; the slides changed every seven and half seconds.2 Then he brought small children in and waited to see if the children focused on the Sesame Street segments or the still pictures. Only segments which elicited attention from many pre-schoolers ended up on the air.3 As a result, the producers discarded segments that they had intended to run and created new characters to hold children’s attention.4 After three or four seasons, nearly every segment held the attention of at least 85% of the children.5

Law students in class also face distractions. In the fall of 2009, while waiting for a professor to vacate a classroom, I peeked into the class and noticed a student simultaneously texting on her cell phone and surfing the web on her computer.6 Consequently, in the fall of 2010, I stationed observers at the back of six law school classes in an attempt to determine, among other things, the extent to which laptops distract students, and whether student use of laptops for non-class purposes is affected by what is happening inside the classroom—for example, whether students are more likely to visit Facebook when the professor is lecturing or another student asks a question. Ultimately the observers recorded detailed observations in 60 class sessions of a collective 1072 laptop users (though there was considerable overlap among those 1072 users).

Because of methodological limits to the study, discussed in Part II below, it is not possible to draw definitive conclusions about law student laptop use. Nevertheless, some patterns emerged. The observations suggest that some laptop use depends on what happens within the classroom. Incentives seemingly make a huge difference to student attentiveness. It

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2 Id. at 102.
3 Id. at 103.
4 Id. at 103–04.
5 Id. at 104.
6 The problem is not unique to law schools. See Katherine S. Mangan, Cutting the Power, CHRON. HIGHER EDUC., Sept. 7, 2001, at A43 (business schools and colleges).
will hardly surprise those familiar with legal education that for first-semester students—for whom grades are more significant in determining admission to prestigious positions on law review and job prospects—the incentives to pay attention generally outweigh the temptation to tune out. But for many upper-year students, temptation wins that contest.

The article proceeds as follows. Part I describes how the study was conducted. Part II explains some methodological problems. Part III reports on the data, and Part IV discusses some implications of the data. Part V concludes with a plea.

I. How the Study Was Conducted

At various times during the Fall 2010 semester, one or sometimes two observers sat in on six law school courses. The classes were all either required courses or survey-style doctrinal electives in which grades depended principally on a final examination. Class sizes ranged from 46 to 91; larger classes were chosen because observers were more likely to be able to see a greater number of students using laptops. Observers attempted to sit at the rear of the classroom to maximize the number of laptops they could observe. Students were not told why the observers were there or that their laptop use was being observed, but over the course of the semester it is possible that some students guessed what was going on; at least two students in the classes observed overheard conversations that led them to deduce the nature of the study. Those students were asked not to repeat what they had learned, but it is impossible to know whether they did, or whether other students overheard other conversations without any of us realizing that fact. In addition, from time to time, observers rose from their seats or craned their necks to view a particular laptop; a student who chose that moment to look behind might have noticed what the observer was doing and deduced why the observer was present. Observers were instructed not to tell any students who asked why they were there but not to lie.

For each session, observers were instructed to record the number of laptops they could see, the number of students who never used the laptop for a non-class purpose (“not distracted”), the number who used them for a non-class purpose for up to five minutes (“occasionally distracted”), the number who used them for more than five minutes but less than half the class (“distracted”), and the number who used them for at least half the class (“strongly distracted”). The five-minute threshold is somewhat arbitrary but it seems a reasonable cutoff between quick checks of email over the course of a class and using laptops for something more. Observers also recorded what was happening in the class in two broad categories: content (e.g., procedural posture of a case, holding of a case) and format (e.g., was the professor calling on a student, lecturing, taking questions).

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7 After the study had run its course, I asked some students in one class that had been observed what they thought the observers were doing at the rear of the classes. One asked if they were there to observe laptop use, but said that she had not discussed this speculation with other students.
The instructions to the observers changed over time in light of what they reported. In particular, the way the observers recorded what was happening in class evolved as we came to a better understanding of what would be useful and attempted to standardize the types of observations. As a result, some of the earlier observations cannot be readily compared with some later observations for some purposes. In addition, as the observers reported their impressions, the instructions changed in an attempt to verify whether those impressions were valid.

Observers were instructed not to report the nature of the non-class laptop use (e.g., surfing the web or playing solitaire), but only that such use was occurring. They were also asked to report students as distracted when they used cell phones for texting.

St. John’s University School of Law—where at least two of the classes were observed—has a policy that bars the use of laptops in the classroom for non-class purposes, except with the professor’s permission. 8 The policy appears in the Student Handbook, which is available on the web and distributed to entering students; how many students are aware of the policy, however, is not clear. In four of the classes observed (Classes A and B, Introduction to Law, and Civil Procedure) the professors have neither a written policy nor announce in class that use of laptops for non-class purposes is prohibited. The remaining two have written policies pertaining to laptop use: Class D stated in the syllabus that use of laptops for non-class purposes is barred while Class C announced on the front page of the class web site that such use is discouraged and may affect grades.

The Classes

I taught two of the six courses observed: Introduction to Law ("Intro") and Civil Procedure. The Article will not identify the other professors involved, name the other courses, or identify the law school or law schools where they took place, but will describe the courses in general terms.

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8 The St. John’s Policy on laptop usage appears in the Student Handbook, which is available online at http://www.stjohns.edu/academics/graduate/law/current/handbook. The web page lists 13 headings. The penultimate heading is “POLICIES AND PROCEDURES,” which in turn lists six captions. The last of these is “POLICY ON COMPUTER USAGE IN THE CLASSROOM.” Downloading either the Handbook in its entirety or the “POLICIES AND PROCEDURES” section yields the following:

Except with the instructor’s permission, during class students are not permitted to compose, review, receive, or send e-mails or instant messages or access the Internet. Unless a professor directs otherwise, computers may be used during class solely for the purposes of taking notes or reviewing materials prepared for the class, such as case briefs and answers to problems assigned for the class. Nothing in this policy is meant to limit the power of a professor to bar the use of computers during class for any reason. The use of computers during class is a privilege, not a right, and may be revoked for failure to comply with this policy, except that this sentence is not intended to affect the right of a student under applicable law or policies of the Law School to use a computer because of a disability.

ST. JOHN’S UNIVERSITY SCHOOL OF LAW, STUDENT HANDBOOK 34 (2010).
Introduction to Law was unique among the courses included in the study in several ways: First, it was the only evening course in the study; second, it was the only non-exam course (each week for four weeks students drafted a short paper based on class work); third, it was graded on a pass-fail basis, fourth, it was offered only to part-time students, and fifth, it had a different schedule from the other classes. The course met intensively at the beginning of the semester but quickly petered out. For the first two weeks of the semester, Introduction to Law met Monday through Thursday from 6:25 p.m. to 9:40 p.m. (the other first-semester subjects began only after those two weeks). Introduction to Law also met once—for two hours—during the third week of the semester and for a final two-hour period during the fifth week. Introduction to Law was also the only course that met before Information Technology conducted a session to introduce students to the Law School’s wireless network. While that session took place between the third and fourth Intro classes, some students may have been able to access the internet during the first three classes because some may have subscribed to independent internet service providers. Others may have obtained access to the law school network earlier by visiting Information Technology. Many undoubtedly could use cell phones to text. The class had 64 students.

Civil Procedure met twice a week for 130 minutes beginning in the third week of the semester. It had 91 students.

The remaining courses in the study were upper-year doctrinal survey courses. The number of students in the four courses was 46 (Class B), 68 (Class C), 78 (Class A), and 88 (Class D). All but Class C met twice a week; Class C met once per week. The classes met either for 85 minutes or two hours; two hour classes included a ten-minute break.

The professor teaching Class B withdrew from teaching during the study. That professor was briefly replaced by another professor who agreed to continue participating, but ultimately the course was taken over by still another professor. When that professor expressed uneasiness about participating, Class C was substituted in the study.

II. Methodological Problems

A prefatory note to this section: the study’s observations were confined to laptop users, and so it sheds no light on the distractedness of students who do not use laptops in the classroom. Still, a great many law students use laptops in class: a survey of law students at one law school found that 79.8% said that they used laptops in classes in which such use was permitted. While

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9 Students had one fifteen-minute break during each session.
10 During the fourth week, student teaching assistants conducted a session to answer student questions. The two-hour sessions included ten-minute breaks.
11 Each session also included a ten-minute break.
12 An additional class that had been observed was dropped from the study after the professor teaching it received a draft of this article and so requested.
13 Jana R. McCreary, The Laptop-Free Zone, 43 VAL. U. L. REV. 989, 1019 (2009). See also Kristen E. Murray, Let Them Use Laptops: Debunking the Assumptions Underlying the Debate over Laptops in the Classroom, 36 OKLA.
we did not record the percentage of laptop users in the observed classes, the proportions were probably similar to those reported in the survey.

The study had at least eight methodological problems. First, the observations took place at very few law schools and so the observations may not predict laptop use at other schools. In the interests of confidentiality, it seems preferable not to identify the law school or law schools in which classes were observed other than to note that my classes were at St. John’s and so obviously at least two St. John’s classes were observed. Colleagues who have taught at other schools have often reported that St. John’s students work harder and are more engaged than the students they encountered elsewhere, suggesting that St. John’s has lower distraction rates than at other schools. The reason why it matters where the observed classes were is that law schools have cultures. Students who observe other distracted students may conclude that tuning out is an accepted behavior while students who see few distracted students may feel that the practice is frowned upon by their classmates. Put another way, laptop use for non-class purposes—or its converse—may be contagious. That intuition finds support in the fact that some observers reported that distracted laptop users tended to cluster near each other.

In addition, St. John’s has an attendance policy. I take attendance in my classes by circulating a sign in sheet. Consequently, students who are unwilling to miss class but who are not interested in paying attention may show up and surf the web, thus inflating the level of distraction when compared with other schools where uninterested students may simply skip class.

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\(^\text{14}\) See E-mail from Saul Leavmore, Dean, Univ. of Chi. Law Sch., to Students and Faculty Colleagues, Univ. of Chi. Law Sch. (Mar. 25, 2008), available at http://abovethelaw.com/2008/03/update-hey-teacher-leave-those-kids-and-their-internet-alone/ (“[U]sage appears to be contagious, if not epidemic. Several observers have reported that one student will visit a gossip site or shop for shoes, and within twenty minutes an entire row is shoe shopping.”).

\(^\text{15}\) A survey of law students found that while 84.4% always brought laptops to their law school classes, only 12.7% did so as undergraduates. Murray, \textit{supra} note 13, at 215. About 11% of the students who used laptops in class in law school but not in college based their decision on what other students did, bolstering the idea that for some, laptop use depends on the behavior of others. \textit{See id.}

\(^\text{16}\) St. John’s attendance policy provides in pertinent part:

Regular and prompt attendance is required of all students at the Law School. A student shall be permitted unexcused absences up to, but not exceeding, two times the number of credit hours in a course. For example, in a three credit-hour course, a student is permitted up to six hours (four ninety minute classes) of unexcused absences.

... When the student exceeds the number of unexcused absences permitted above, the student shall be subject to sanctions. The sanction shall be disqualification from sitting for the final examination and no credit for the course, unless the professor chooses to impose a lesser sanction.

\textit{St. John’s University School of Law, Student Handbook} 13 (2010), available at \url{http://www.stjohns.edu/academics/graduate/law/current/handbook}. 
Second, observers sat in on only six courses. Larger classes were chosen for observation because more laptop users could be seen in such classes. Students may take such a course not because of interest in the subject but because it is required, they feel a need to learn the material for bar preparation or a job, because it is a gateway to more advanced courses, or it is a core subject, among other reasons. Accordingly, they may be quicker to tune out. Perhaps smaller classes that students chose because of a particular interest in the subject might have lower distraction rates. Certainly classes in which greater class participation would be demanded—such as a small seminar—could be expected to generate greater attention rates.

Third, student laptop use is a crude measure of how attentive students are. Because the observers were seated behind the students, the observers often could not see where the students were looking. It is entirely possible that students who had a web site on their screen were in fact paying attention. Indeed, one observer reported that one student frequently used his laptop for non-class purposes, but would raise his hand and speak or ask questions, suggesting an awareness of what the professor had just said. Conversely, just because a student does not have a solitaire game up does not mean the student is paying attention.

Fourth, while the observers were able to record 1072 observations during the study, many of those observations were of the same students in session after session of the same course. The observers sat in the rear of the room and were obliged to take seats that had not previously been claimed by enrolled students; as a result, they were limited in the number of observation posts. Because students typically sit in the same seat in each session of a course, the observers consequently saw the behavior of the same students over multiple sessions. For example, in Class D, the number of students observed on any given day ranged from eleven to sixteen, but the total number of students observed over the semester was 21. The observations in Class A were based on eighteen students, though in any given class only eight to fifteen students could be seen. The two observers in Civil Procedure collectively saw 38-43 students over the course of the semester.

Fifth, the observations were all made in a single semester—the Fall of 2010—and perhaps other semesters would have yielded different results. It is plausible, for example, that students would behave differently in the spring semester, given that they have already undergone a full semester of classes, weather conditions are different, students in their last semester may already have secured jobs or be more concerned with bar exam preparation, or for other reasons.

Sixth, sometimes observers noticed students using the web for class purposes. For example, a student might read a case mentioned in class but not included in the course materials or look up a term at a dictionary site. When the observers became aware that students were using the

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17 Sometimes professors use seating charts, essentially freezing students in their classes.
18 Similarly, one survey of law students found that “60.9% of the respondents have used e-mail and instant messaging services to send messages to students in class about the class generally; 11.3% have sent messages ‘to
internet in such a way, they did not count the student as distracted. Nevertheless, given the
distance between the observers and some of the students, and what the observers could see of the
laptop screens, it is possible that some such laptop use was incorrectly considered to be
distracted.

Seventh, the staffing may have affected the observations. We never had more than two
observers in my classes and never more than one in the upper-year classes, with the result that
some laptop use probably escaped detection. In addition, some errors might have occurred
because of a lack of consistency. Different observers may have interpreted the instructions
differently, which could have led to coding errors. The coding categories were necessarily
somewhat vague and overlapping and consequently observers had to interpret behavior. For
example, what appeared to one observer to be a tangent might have seemed relevant to another,
especially since the observers could not give their full focus to the content of the class and so
might have missed connections between the supposed tangent and the material. For another
example, a professor calling on students sometimes blended seamlessly into lecturing, but the
observers had to pinpoint the moment at which the shift occurred—and do so while class
continued and they were required to record additional observations. To give a further sense of
the demands upon the observers, the content and format might shift from minute to minute, as,
for example, when a professor called on a student to recite the facts of a case, took a question,
called on a student to state the case’s procedural posture, read some text from the case, called on
a student to explain the text, and posed a hypothetical about the scope of the case’s rule. Under
the circumstances, the observers did an impressive job, but it is inevitable that errors crept into
their work. It would have been better if we could have videotaped classes so that we could have
given more thought to how to record observations instead of making them contemporaneously
while under time pressures as classes proceeded.

Finally—and this builds on the points made in the last paragraph—the observers were
required to do several things at once, and that may have introduced errors. They were obliged
to record what was happening in the class in at least two ways—both the format of what was
happening (e.g., lecture, calling on students) and the content (e.g., rule of law, facts of a case)—
while simultaneously keeping track of how many out of as many as 23 students were distracted.
They were also required to determine whether the students they could see were never distracted,
were distracted for up to five minutes, for more than five minutes but less than half the class, or

receive assistance when answering questions in . . . class'; and 13.9% have sent a message to a classmate answering
questions in class ‘to provide helpful assistance.’” Murray, supra note 13, at 212.

19 The staffing was set up this way for a number of reasons. Initially, my primary concern was with the way students
in my classes behaved because I thought it might affect my own teaching. It was only later that it seemed desirable
to broaden the study beyond my classes and by then it was difficult to schedule more than one observer per class.
Scheduling problems were a consideration, and in addition, it seemed preferable not to switch observers from class
to class because students in the classes might have noticed the switches and speculated about why different people
were sitting in the rear of their rooms, which might have impaired the study.

20 This is somewhat ironic, in light of the nature of the study: observers had to multitask even as they watched to see
if students multitasked.
for more than half the class. Because some students were not constantly distracted, but might, say, check email several times over the course of a session, that last task involved some estimation, which might have caused inaccuracies.

III How Much Did Students Use Laptops for Non-Class Purposes?

A. Upper-Year Classes

The short answer to how much students used laptops for non-class purposes in the upper-year classes is a lot.21 Table 1 shows the aggregate amount of laptop use for the four upper-year courses; a graphical representation appears in Figure 1. Of the 387 observations, 223 students, or 58%, were distracted at least half the time.22 Another 113 or 29%, were distracted more than five minutes but less than half the time per class. In other words, 87% of the upper-year students observed used laptops for non-class purposes for more than five minutes during the class.23 Those numbers raise serious questions about how much students are learning in class.24

21 This is consistent with the observations of others. See James M. Kraushaar & David C. Novak, Examining the Affects [sic] of Student Multitasking with Laptops During the Lecture, 21 J. INFO. SYS. EDUC. 241, 241 (2010) (noting that a study of 97 undergraduates who consented to have observing software placed on their computers found that students “have non course-related software applications open and active about 42% of the time”); Nancy C. Maxwell, From Facebook to Folsom Prison Blues: How Banning Laptops in the Classroom Made Me a Better Law School Teacher, 14 RICH J.L. & TECH. 4 para. 24 (2008) (“Although this tracking is highly unreliable from a scientific perspective, it does point out that in only one class session out of a total of seventy-six sessions, there was no inappropriate use of the visible laptop screens at every ten minute data collection point. In other words, law school professors should assume at any given moment in class, at least one student, and probably more, are engaged in inappropriate use of the laptop, particularly considering that a high percentage of the laptop screens were not visible to the trackers.”); see also McCready, supra note 13, at 1020–22 (survey of law students found “14.5% of students use their laptops to play games” and “70.5% admit to surfing the Web” in class, while “only 3.2% of the students who used a laptop in class reported that they never used the Internet during class”); Tim Hurley, The Downfall of Legal Education, 75 J. KAN. B. ASS’N 10 (2006) (first-year Washburn law student observing that “almost every laptop I can see [in a class] has one or more conversations, a solitaire game, or the Internet opened to something other than Lexis or Westlaw”); Sherry F. Colb. Should Law Students’ Use of Laptops Be Limited to Prevent Web-Surfing in Class?, FINDLAW (Sept. 6, 2006), http://technology.findlaw.com/articles/00006/010231.html (reporter told professor she had a “low rate” of “about forty percent” of students surfing the web during class).

22 As noted above, those 223 students included many multiple observations of the same students in different sessions of courses.

23 This is consistent with some other reports. See Orly Lobel, Banning Laptops from the Classroom, PRAWFSBLAWG (July 27, 2006, 2:34 PM), http://prawfsblawgblogs.com/prawfsblawg/2006/07/banning_laptops.html (“Michigan law professor Don Herzog . . . said that when he first suspected students were checking the Internet during class, he sat in the back of his colleagues’ classes as an experiment and saw that about 85 to 90 percent of students were surfing.”).

24 To the extent that this study shows greater distraction rates than other studies, see, e.g., Murray, supra note 13, at 210 (survey found that 55.6% of students used laptops in class for non-class purposes “occasionally;” 4.1% reported never doing so: 13% acknowledged doing so “about half the time;” “21.3% said they ‘usually’ do, and 5.9% said they ‘always’ do’); Scott A. Taylor, Laptops, Wi-Fi, Social Networks, Blogs, Expert Daily Emails, and Podcasts: A Survey of Learning Enhancement 3–4 (Mar. 11, 2009) (unpublished manuscript), http://ssrn.com/abstract=1355942
Examination of the numbers for the individual classes is quite discouraging. Table 2 shows the figures for the 146 observations during fifteen sessions in Class A. Overall, 62% of the students were strongly distracted, and in only three of the fifteen classes observed did the proportion of strongly distracted students fall below half. It never fell below 40%. The observer reported that in one session every student observed was strongly distracted, while in three, 70% of the students were. Fully 90% were distracted for at least five minutes a class while only five times, or a depressing 3%, out of the 146 observations, did a student refrain from using a laptop for non-class purposes for an entire class.

Table 2 goes around here.

An observer sat in on three sessions of Class B, and made 33 observations, as reflected in Table 3. More than three-quarters of the students observed were strongly distracted and in no class were less than 62% of the students strongly distracted. In one session, all eleven students observed used their laptops for non-class purposes more than half the time. Only once—or 3% of the observations—did a student not use a laptop for a non-class purpose.

Table 3 goes around here.

An observer was able to record 53 observations in four sessions in Class C, as seen in Table 4. Overall, 53% of the students were strongly distracted, and 96% used laptops for non-class purposes for more than five minutes in a class. Every student observed used a laptop for a non-class purpose at some point during each class, and only twice in a class did students confine their non-class laptop use to less than five minutes.

Table 4 goes around here.

[in a survey of students with 34 respondents, 27% reported no or little laptop use in class for non-class purposes; 59% reported “about 20%”; 9% “about 40%”; 6% “about 60%”; and 0% “80% or more”), the explanation may lie in the fact that the other studies depended on students to self-report. One study that compared self-reported tuning out to data collected via spyware placed on computers found significant under-reporting. See Kraushaar & Novak, supra note 21, at 248–49 (“Approximately 87% of students reported using email during class lectures, while 94% were actually recorded using email during the lecture. More notably, 25% of students reported using IM during class lectures, while 61% were actually observed by the spyware using IM during lectures. Email use was under reported by 7% while IM use was under reported by 40%.”). Taylor’s study, supra, at 4, also asked students to estimate whether other students engaged in non-class use of laptops during class more, less, or the same as the student answering the question. Not one of the 33 students responding reported that others used laptops less. Id. at 5. Eighteen—or 55%—said others used their laptops more, while 15—or 45%—claimed that others used their laptops the same amount. Id. As a mathematical matter, those responses simply cannot be correct, suggesting again that students think they use laptops for non-class purposes less than they actually do. Another possible explanation involves one or more of the methodological problems described supra Part II.]
Table 5 shows the figures for the 155 observations in eleven sessions for Class D. Overall, 51% of the students observed were strongly distracted, and for eight of the eleven classes observed, at least half were strongly distracted. In only two sessions were as few as a third of the students strongly distracted. Only 10% of the students never used their laptops for non-class purposes.

**TABLE 5 GOES AROUND HERE.**

These numbers should be deeply distressing to those who believe that students learn in upper-year doctrinal survey courses. Indeed, they raise questions about the value of such classes. Of course, because of the methodological problems listed above, the findings are far from definitive and may not reflect what actually happens in most, or even many, upper-year classes. Additional observations of other classes are needed to determine how common tuning out is. But if other classes experience the same level of distraction, law professors should consider, as discussed below, banning laptops along with whether the upper-year survey class provides a useful way of conveying legal doctrines. Many students, it would seem, are voting with their fingers that such a class does not.

**B. Civil Procedure**

Table 6 displays the amount of distraction for Civil Procedure, as seen over 600 observations in 22 sessions. The numbers are far more heartening than for the upper-year courses. Only 4% of the students were strongly distracted while 44% were never distracted; nearly a fifth were occasionally distracted and less than a third used laptops for more than five minutes but less than half the class.

**TABLE 6 GOES AROUND HERE.**

**C. Introduction to Law**

As noted above, the observers had to observe a number of classes before we could come to conclusions about what was worth tabulating. As a result, the Introduction to Law course ended before we created the form we used to track non-class laptop use. Nevertheless one observer took sufficiently detailed notes to permit filling out the form for four sessions of Intro. The results appear in Table 7.

**TABLE 7 GOES AROUND HERE.**

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25 Anecdotal evidence raises questions about whether other first-semester students are equally attentive. See Paras D. Bhayani, *HLS Debates Laptops in Class*, HARV. CRIMSON, Apr. 11, 2006, available at http://www.thecrimson.com/article/2006/4/11/hls-debates-laptops-in-class-as/ (quoting Professor Richard D. Parker that six weeks into a first semester contracts class, “two-thirds of the students had stuff on their screens that was completely unrelated to contracts”).
Some other observations also merit comment. While few students in Intro had access to the Law School’s wireless internet connection until the fourth class, observers spotted three students texting during the first class. The first of these did so seventeen minutes into the class—and her law school career. The observers reported that she texted frequently that evening.

By the second night, at least four students were using laptops for non-class purposes—three of whom began doing so eight minutes into the class—and several were texting, at least one frequently. Habitual non-class use of laptops was not common during the first week, however. Thus, one observer reported that while she could see 32 students using laptops on the fourth night of class, which was the last class of the first week, only two or three used their laptops often for non-class purposes. The other reported that out of the 14 laptop users she could see that night, four used them for non-class purposes, including one frequently. In other words, of the 46 laptop users observed that evening, at most three, or 7%, used laptops often for non-class purposes. In a three-hour session at night—which, for some, meant after a full day of work—in a pass-fail course, that finding compares favorably with the upper-year courses.

Table 7’s observations were of two classes in the second week of the course—before the regular semester schedule began—and the last two classes in the course. Session three took place after the students had attended one of their regular semester classes; though the regular semester schedule had officially begun, session three took place on its first night and so was almost an extension of the front-loaded period. But session four occurred after the students had attended two weeks of their regular semester classes. Session four shows a steep increase in the level of distraction; indeed, twice as many students were observed tuning out for more than half the class in that one session as in the three previous sessions combined.

IV When Did Students Use Laptops for Non-Class Purposes?

One goal of the study was to discover whether what happens in class affects the number of students who tune out. Thus, I wanted to compare the percentage of students who were distracted when, say, a professor was lecturing, to the proportion that tuned out when the professor took questions. Ideally, this information would have been recorded by the amount of time devoted to the various activities and the amount of time that students were distracted, but that simply wasn’t possible, given our resources. Consequently, we took a different approach. First, we recorded the number of times a professor engaged in a particular activity—such as lecturing or exploring the facts of a case—during the class. We treated each of these activities as an opportunity to pay attention (or alternatively an opportunity to be distracted). We also tracked the number of students who were distracted during each such activity. Next, we divided the number of students who were distracted during the opportunities by the number of opportunities to arrive at an average for each activity, so that those averages could be compared.

We kept track of what was occurring in classes in two ways: the content of what was covered (e.g., a discussion of policy or the facts of a case) and the format of the class (e.g., calling on students, lecture). This method of coding resulted in many moments being counted twice: once for
the content, and a second time for the format. Occasionally, when a professor used a PowerPoint slide, the same moment could even be recorded in three ways: once for the format, a second time for the content, and a third for use of the slide. On the other hand, because the content sometimes did not fit within any category, some moments were coded only once, for format.26

This method of recording distractions probably overstated the amount of distraction. Suppose, for example, that a professor lectured for three minutes, and that in the first minute one student was distracted; in the second minute, two were; and in the third, three were. This was recorded as three students distracted, even though for two of the three minutes, fewer than three students were distracted. This was a concession to how much the observers were required to observe. But while this measure may exaggerate the amount of distraction, it probably still makes it possible to compare the number of students who were distracted during two different activities. That is to say, assuming that the amount of exaggeration is consistent across various activities, it is possible to determine whether students are more likely to be distracted during one activity than another.

A. Upper-Year Students

Table 8 reports the aggregated observations for various activities during the classes; Figure 3 presents a graphical representation. The average level of distraction for upper-year students was 35%, though as discussed above, that figure probably overstates the amount of distraction. For most activities, the level of distraction was remarkably stable: ten of the sixteen activities drew a distraction level of 33% to 37%; of the remaining six activities, three had 108 or fewer opportunities, meaning that the observations are less valuable as to them. It thus appears that upper-year student decisions to tune out are usually not responsive to what the professor is covering—though, as discussed below, there are exceptions.

TABLE 8 GOES AROUND HERE.

FIGURE 3 GOES AROUND HERE.

For activities as to which upper-year students had more than 100 opportunities, Table 8 shows the highest level of distraction—42%, or about 7% higher than the average level of distraction—occurred when professors took questions from students.27 This difference was statistically significant, according to a paired t-test, at the 5% level. The increased tendency to tune out student questions and answers may reflect a student assumption that the matters students ask questions about are less likely to surface on exams and so students can safely tune out. Of course, that assumption is

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26 Some events occurred so infrequently that it did not seem worthwhile to create a separate content category for them. Examples include: comments about upcoming classes, discussing the syllabus, showing a video, inviting students for drinks at a local establishment, and breaking students into small groups to discuss hypotheticals.  
27 Upper-year students were more likely to be distracted when professors went off on tangents, such as announcing upcoming events, but because that occurred infrequently—students had only 76 opportunities in the classes observed, and even those were confined to two classes—the observations seem less likely to be useful.
often not true. Student questions sometimes anticipate matters that professors intend to cover later in the course and professors sometimes reply to questions with material they intended to present later.

This increased tendency to tune out when classmates ask and professors respond to student questions creates several issues for professors. Should professors take fewer questions, on the theory that fewer students will listen anyway, and so class time is better used for other purposes? Professors may disagree about whether the increase in distraction level—about one extra student in fourteen—justifies such a decision. In addition, it is impossible to tell from the data whether students are exercising discretion in tuning out. For example, some may ignore answers to less useful questions or questions to which they already know the answer, but pay attention to other exchanges which the professor would agree are more useful for students. Students have told me that they do make judgments based on the student who posed the question and the content of the question in deciding whether to tune out.

Still another issue: should professors, anticipating that more students than usual will tune out in response to questions, make explicit that the answer includes matters that would have been covered in the normal course of the class, in an attempt to reduce the level of distraction? However, if professors adopt such a strategy as to such matters, when they omit that statement students may conclude that they have a license to tune out, and so the level of distraction may increase.

Upper-year students were least likely to tune out—with a 32% distraction rate—when the professor stated a rule or when text was read, though that distraction rate was only 3% below the average rate. Still, using a paired t-test, the differences were found to be statistically significant.

B. First-Semester Students

Table 8 also shows the aggregated observations for Civil Procedure; Figure 4 presents a graphical representation. The average level of distraction was 14%, though again that probably overstates the level of distraction. The Civil Procedure students share some behaviors with their upper-year colleagues. Thus, the Civil Procedure students also exhibit a higher level of distraction (19%) when students asked and I responded to questions, but the increase—about 5%—is slightly lower than the 7% increase seen in upper-year classes. Another similarity is seen in the slightly lower percentage of distracted students when a rule is discussed or text is read. Both of these differences were found to be statistically significant through a paired t-test.

FIGURE 4 GOES AROUND HERE.

One difference between upper- and first-year students is that the level of distraction fell to its lowest point—under 10%—when I displayed PowerPoint slides in Civil Procedure. That drop too was statistically significant. I do not post my slides on the web. The observers in Civil Procedure reported that when I displayed a slide, distracted students abandoned the internet to take down

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28 Two other topics elicited low distraction rates but the small number of opportunities for these items reduces the utility of the observations. Less than 30% of the students tuned out discussion of the procedural posture of cases, but there were only 108 opportunities devoted to that topic in the only two classes to explore it. Policy discussions drew a 33% distraction rate on 49 opportunities, again in only two classes.
the information on the slide. By contrast, in the classes in which the professor posted slides on
the course web site, distracted students stayed distracted. Because professors sometimes display
important information on slides, Civil Procedure students might have thought that failing to
record the contents of a slide would deprive them of something they would need to know, while
students in classes in which the professors made the slides available after class faced no such
penalty. But it cannot be certain that this explanation accounts for the different responses; the
different behavior may simply reflect the differences between first-semester and upper-year
students because all the professors who posted the slides on the web taught upper-year students
and my students were, as noted above, all first-semester students. Civil Procedure students also
displayed a statistically significant drop in attention when we worked through problems and
hypotheticals.

One striking finding is that the Civil Procedure students were more likely to tune out during
policy discussions than anything else except for when I took questions (imagine how bad it gets
when students ask questions about policy justifications). Nearly 18% were distracted during
those discussions, a difference that, using a paired t-test, was found to be statistically significant.
First-semester students also differed from upper-years in that attention levels were less stable
across different activities for the Civil Procedure students than they were for the upper-years.
Six of the sixteen activities drew distraction levels between twelve and sixteen percent from the
Civil Procedure students.

Intro students showed different patterns of attention than the other students, though whether
that was because it was their first law school course, and so students had not yet developed
laptop habits, because it was a pass-fail course, because students were not tested in the course, or
for some other reason is impossible to know. Inasmuch as only four sessions were tracked in
such a way as to permit assembling the data displayed in Table 8, it is also possible that a fuller
picture of Intro would look different.

The average level of distraction in Intro was 22%. The level of attention by activity varied
more in this course than in any other, with only two activities drawing distraction levels in the 20
to 24% range, but again that may be because the data is based on only four sessions. For
activities in which students had more than 100 opportunities, the level of distraction ranged from
9% to 46%. As with the Civil Procedure students, the Intro students were most likely to tune out
during policy discussions, with a distraction level of 46%, or more than twice the average
distraction rate. And again, like the Civil Procedure students, distraction levels fell, to 15%,

29 Cf. Maxwell, supra note 21, para. 4 (professor posted to web site notes she typed during class).
30 Even assuming that not posting the slides explains the different behavior, it is not clear that such a practice
actually is helpful to students. Some class time is taken up by students copying down information on slides, while
the students who were distracted before the slide went up may simply return to the distraction when they have
finished recording the contents of the slide. On the other hand, students who copy information on a slide have that
information in their thoughts, however briefly, though some claim that taking down information is not of much
value. See infra note 59 and accompanying text.
when slides were displayed. But unlike the other students, Intro students were more likely to pay attention when students asked questions, with an average distraction level of 12%, and less likely to pay attention to rules.

C. Some Good News and Some Bad News

Law professors sometimes argue that students should learn that policy arguments and the facts and procedural posture of cases matter. The study offers some evidence about their success in doing so. First, the good news: student attentiveness to the facts of cases is comparable to their overall attention levels. The level of distraction among all laptop users observed when facts were explored was 24%. Upper-year students were slightly less likely to tune out during discussions of facts (34%) than during other activities (average of 35%), while Civil Procedure students were a hair more likely to ignore the facts (15%) than usual (average of 14%), a difference that was not statistically significant. Intro students paid much closer attention to the facts (14%) than most matters (22.3%).

The evidence is less clear—but still encouraging—concerning the degree to which students are distracted during discussions of the procedural postures of cases. While the overall distraction level for such discussions was 18%, that figure is disproportionately affected by Civil Procedure: of the 628 opportunities on procedural background, 458, or 73%, were in Civil Procedure. Because that course involves procedure, and because we pay particular attention in Civil Procedure to case procedural postures, the distraction level in that class may not be typical of law school classes generally. Taking Civil Procedure out of the numbers yields 170 opportunities and 40 distracted laptop users, for a percentage of 24%, which is still a low level of distraction—though with only 170 opportunities, the data is far from definitive.

The data on policy discussions is disappointing. Students had only 49 opportunities for policy discussions in the upper-year courses so the data is based largely on the first-semester classes. Both Intro and Civil Procedure students tuned out more during policy arguments than for any other activity. I can only hope that the professors who followed me were more effective at teaching students the significance of public policy.

D. Format

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31 The level of distraction also fell when text was read, but students faced only 76 opportunities so the data may be less meaningful.

32 See, e.g., Judith L. Maute, Response: The Values of Legal Archaeology, 2000 UTAH L. REV. 223, 227 (“[F]or years I kept a taped note on the cover page of my contracts casebook: ‘If you don't get it factually, you can't get it right legally.’”); Russell L. Weaver, Langdell’s Legacy: Living with the Case Method, 36 VILL. L. REV. 517, 584 (1991) (urging professors to emphasize policy considerations in teaching case law).

33 This may have something to do with student perceptions that professors do not test policy questions. See Weaver, supra note 32, at 577–78 (reporting on survey of students finding that “few students” say they have been tested on policy considerations).
The study suggests that the choice of whether to cover content by lecture, calling on students, or discussion (identified in Table 8 as “Student-Volunteered Comments”) makes little difference to student attention (though of course it may matter for such things as student mastery of the material or the amount of time it takes to cover a topic). Thus, for upper-year students, the level of distraction varied from only 34 to 37% for those three activities while for the first-semesters it was in the 15-17% range for all three.

E. Stickiness of Laptop Use

Because distracted students are likely to miss some of the content of the class, they may lose the thread of the conversation. Students who no longer understand what is going on may decide to tune out for the balance of discussion of a topic, on the theory that they have nothing to gain by paying attention until the topic shifts. If that were so, we would expect to see more increases in the number of distracted students, as first one, and then another, student become momentarily distracted, and then decide to tune out until the topic covered changes. In fact, the study found no evidence for this hypothesis. Table 9 shows the number of times that the number of distracted students increased or decreased in selected courses. As seen there, it was slightly more common for the number of distracted students to drop rather than increase. It thus appears that for many students the state of being distracted is not “sticky,” in that they can return from a distracted state to paying attention, or at least to not being distracted by their laptop.

IV Some Comments on the Data:

A. The Role of Incentives and Temptation

The difference in distraction levels among the Civil Procedure and upper-year students is striking. The most plausible explanation for the difference lies in the role of incentives. As is well known in the law school community, first-year grades have far more significance for most students than upper-year grades. Law Review eligibility depends in part on first-semester grades. Obviously, employment and internships during the summer after first year—which can be remunerative in the short term and have resume and other value in the longer term—depend to some extent on first-semester grades. Similarly, employment during the summer between second and third year at the top firms—the most highly-paid employment, and which can lead to full-time jobs upon graduation—is typically decided in the fall of second year, before second-year grades are available.

Upper-year students know all this. And so perhaps more feel freer to ignore what is happening in the classroom, because they understand that their grades are less significant and the cost of not mastering the material is lower.
Other explanations for the distraction differences are also possible. Perhaps the temptation to use a laptop increases over time. Students come to law school to learn, and that may propel them to pay attention in the early going. In addition, law school is still new in the first semester, and so students may find it more interesting—even exciting—and be less tempted to play solitaire, etc. But by the third and fifth semesters of law school, students may have become bored and their interest in learning may decline.

The data offers a way to test this hypothesis to some extent. If boredom accounted for the effect, we might expect to see an increasing number of students tuning out over time. In fact, the level of distraction did increase in Civil Procedure somewhat, as Figure 2 shows. Table 10 shows the percentage of students observed tuning out in Civil Procedure for each of the last three months that that class was observed. The percentage of students who never used laptops for non-class purposes dropped somewhat over that span, from 46% to 39%, and the percentage of students who were distracted at least half the time increased slightly, from 3% to 7%. Similarly, the percentage of students who used laptops for non-class purposes for more than five minutes in a class increased from 32% to 44% from the first month to the third. But while the amount of laptop use for non-class purposes increased over time in the first semester, it still falls well short of the amount observed in the upper-year courses. It may be that the increase accelerated in the second semester, which of course we did not observe. In any event, boredom remains a possible alternative—or complementary—explanation for the differences in laptop use between the first and later semesters. By contrast, the distraction levels in the upper-year classes seemed fairly stable over time. It may be that boredom accounts for some amount of distraction, but that by the time students reach their second year, boredom has had as much an effect as it will.

The most flattering explanation, of course, is that students responded better to my teaching (since I was the only professor observed teaching first-semester students) than the upper-year students responded to the teaching of their professors. Colleagues have assured me, however, that this cannot possibly be true. It would obviously be desirable to observe other first-semester classes to see if the pattern observed in my classes is true of them as well. Another reason to study other first-semester classes is to test the hypothesis that the more difficult the class, the more students pay attention. Because Civil Procedure is commonly thought of as the most difficult first-semester class, comparing distraction levels in Civil Procedure with those in other first-semester classes might make it possible to determine if this hypothesis is true.

A student suggested that one reason first-semester students focus more on classes is that first-semester students “must do more mental work than upper year students in order to reach the same understanding of the material.” Put another way, he argued that because first-semesters are newer to the process of “thinking like a lawyer” and less familiar with legal materials, they must concentrate more than upper-year students who can grasp the material without giving it their full attention. This is inconsistent with the idea that teachers of upper-year students tend to take into account the greater experience of their students and demand more by, for example, moving more quickly through material, explaining less, and working with more challenging concepts, but the study’s data does not disprove the hypothesis.

One class was observed before the three months in Table 9 and so is not reflected in them.
The effect of incentives is also visible in the Intro data. Though the class was graded on a pass-fail basis, students still had an incentive to pay attention to it in the early going. It was their only class during the first two weeks, and they were eager to learn what law school is like and whether they could meet its challenges. I described Intro to the students as the chair in which the other courses sit. We spent an enormous amount of time exploring the “lawyer’s toolbox”; that is, techniques—such as distinguishing cases, synthesizing cases, arguing that statements in opinions are dicta, examining legislative intent, and so on—that lawyers use to formulate arguments and interpret cases and statutes, and that they were told would be needed in their other classes. But by session four, when the distraction level soared, the other classes had begun, and, students perceived more to gain by focusing on graded courses than on a pass-fail course. In addition, students had completed the written assignments for Intro before the fourth session and so the material covered in that session did not affect whether the students received a passing grade. Consequently, for some the incentive to pay attention yielded to the temptation offered by laptops.

Incentives may also explain when students are more or less likely to pay attention in class. Students facing a law school exam probably expect to be tested on rules more than anything else, and so students might have a greater incentive to pay attention when classes explore them. While discussion of rules drew less attention in Intro, perhaps that is because students were not tested on rules in that course. In addition, rules are less important in Intro as the goal of the course is to convey techniques, rather than legal doctrines. Similarly, my students may have chosen to pay attention when I displayed a slide on the theory that if something was important enough to merit displaying on a slide, it may show up on an exam. Conversely, students probably believe that tests are unlikely to cover student questions and the accompanying answers, and so they tune them out. In the same way, the first-semester students may have anticipated that policy justifications will not be the subject of test questions. It is harder to account for the tendency to pay attention when a text is read, especially because students usually have a copy of the text in question in their books; perhaps students believe that when a professor singles out a passage to be read in class, it could be the subject of a test question. And of course, often the text so singled out consists of a rule.

One story to emerge from the data involves what happened when, during one session, I offered my Civil Procedure students small Hershey chocolates—Mr. Goodbars, Krackels, etc.—for making good points during that session. The number of distracted students fell. Thus, instead of the normal 37% of students who were distracted for more than five minutes, only 20% of the students were (n=29), and none were distracted for more than half the class (though it was not uncommon for no Civil Procedure students to be distracted for more than half a session).

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36 I have not come up with a satisfactory hypothesis to explain why the Intro students paid more attention when students asked questions, rather than less, as in the other classes. Perhaps it was a function of their newness to law school.
37 That does not account for the drop in distraction when text was read in Intro, but because students had only 76 opportunities during the reading of texts in intro, the data is not very robust.
Initially, that seems irrational: the prospect of earning grades that could help a student secure a job paying $160,000 a year was not enough to concentrate student attention, but a piece of candy that could be bought for a quarter or less was. Twelve days later, I repeated the experiment, but with trading cards instead of chocolates. This time the level of distraction was comparable to other classes: a third of the students were distracted for more than five minutes, and one was distracted for at least half the class (n=30).

We also tried offering chocolates as a reward for participating to students in an upper-year course. The chocolates did not increase upper-year student attention levels; indeed, quite the reverse happened. The percentage of students distracted for more than half the class hit its highest level of the semester in that session for the course (66%; n=12), about 16% higher than the course average.

Given the small numbers involved, first-semester student responses to the chocolates may be no more than a statistical quirk, but other explanations are possible, including both the boredom and incentive hypotheses. The competition aspect of the chocolates as reward may have relieved some of the tedium, but by the second time—with the cards—perhaps it was old hat and so not enough to sustain interest. A student in the class suggested that the explanation was that students value chocolate more than trading cards. But if chocolate were such a powerful inducement, the upper-year students would probably have paid as much attention as the first-semesters; there is no reason to suppose first-semester students have a stronger sweet tooth than upper-year students. Perhaps upper-year students found the contest uninteresting. Another student suggested that first-semester students, who take nearly all their classes together, are an important social group, and that their greater interest depends on that; upper-year classes are drawn from multiple sections and even years and so are less significant as a social group. But that fails to explain the diminished attention during the card experiment.

As for the incentive hypothesis, first-semester students have far less information than upper-year students about their ability to succeed in law school. Many are desperate for feedback. They may also be curious about the talents of their classmates. Competing for rewards offers information about their proficiency while observing whether classmates earn tokens enables them to learn about their classmates’ abilities. By contrast, upper-year students have already received at least a year’s worth of grades. They also have some information about the performance of their classmates. They may know the grades of some classmates, and can discover more information about students’ academic performance from their extracurricular activities; service on law review, for example, implies academic success. Consequently, the upper-year students had less incentive to pay attention. They already had far better indicators of talent.

38 Specifically, I let them choose between football cards and cards based on Club Penguin.
39 In addition, some students valued the cards enough that they were still carrying them months later.
While incentives may account for the differences in student behavior, they do not do so entirely. For example, presumably all the students in the Civil Procedure classes faced the same incentives, and yet some behaved differently in that some students tuned out despite the incentive to pay attention. In other words, some were more responsive to the incentive to do well than others. Indeed, in Intro, one student began texting seventeen minutes into her law school career and continued throughout the evening. It is inconceivable that she could have known enough about law school that quickly to determine whether she needed to pay attention. In short, while incentives offer the most probable explanation for some student behavior, other explanations, probably including innate differences among students, must also play a part.

B. Prohibiting Laptop Use for Non-Class Purposes While Allowing Laptops in Class

The study found no evidence that allowing students to have laptops but announcing a prohibition on laptop use for non-class purposes has an impact. When a professor announced that students could not use laptops to surf the web, the three students who were on web sites at that moment did not close their browsers; instead they continued to be distracted. Of course, that number is so small as to be statistically insignificant, but other evidence supports it. Nancy G. Maxwell reports a similar result in a course in which the professor announced during the first session that “laptops were to be used for note-taking only”; during that very session, “every single data collection point showed inappropriate [laptop] use” while non-class laptop use occurred in each of the remaining 33 classes observed as well. And the St. John’s laptop policy obviously did not eliminate classroom laptop use for non-class purposes in the St. John’s classes observed.

The Maxwell study did turn up some evidence that a policy on laptop use makes a difference, however. Her tracker found the highest non-class laptop use in the only class observed in which the syllabus did not state a laptop policy and the tracker could not recall the professor announcing such a policy.

Students also feel free to lie about laptop use. On some occasions in class, I called on students who then asked me to repeat the question. On one such occasion, I asked the student if he had been surfing the web. He denied having done so; behind him, my observer nodded that he had been. Another time, I suggested that a student had been sending email; she said that she would never do so during class, but my observers reported that she was one of the most

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40 It is possible that some first-semester students actually had different incentives. For example, a student with a lawyer-parent who has promised to employ the student upon graduation may feel a reduced incentive to earn top grades.

41 Maxwell, supra note 21, para. 21.

42 For another example, see Mangan, supra note 6, at A43, A46 (noting that some students ignore professor who asks students not to use internet during class).

43 Maxwell, supra note 21, para. 22.
frequently distracted students in the course.\textsuperscript{44} Obviously, some students feel entitled to tune out despite restrictions on their doing so.\textsuperscript{45}

C. Should Professors Prohibit Laptop Use Altogether?

Banning laptops has a cost.\textsuperscript{46} This section addresses the question of whether professors should impose the costs inherent in foregoing laptops on students.\textsuperscript{47} Of course, those costs are not overwhelming; generations of students, including many who are now professors, graduated without using laptops.\textsuperscript{48}

\textsuperscript{44}See also Maxwell, \textit{supra} note 21, para. 12 (reporting that student seated behind student who had been on the Internet but denied doing so when the professor asked wondered if he should report that fact to the professor as an honor code violation).
\textsuperscript{45}Some do even more:

Many professors initially asked offending students [at Darden] to log off at the beginning of class. When that didn’t work, Darden installed kill switches in each of the M.B.A. classrooms. . . .

“At first, the teacher would turn the system off, and when he wasn’t looking, students would turn it back on,” says [Darden spokesman Phillip] Giaramita. The switches were moved to hidden locations inside classroom closets.

“If students wanted it on badly enough, they’d pull the old ‘I have to hang up my coat’ routine” and duck into the closet,” says James M. Fink, who received his M.B.A. in May. “That would be their cover for flipping the switch back on.”

\textsuperscript{46}See \textit{McCreary, supra} note 13, at 989 (“[S]ome students use laptops effectively and appropriately and benefit from having them in the classroom.”); Murray, \textit{supra} note 13, at 192 (“On the other side of the debate are those who believe that laptops should be welcomed into law school classrooms because students are technologically savvy, can use them for active learning, and should use laptops in law school because they will have to use technology in practice.”). Some law schools have recommended to students or required that they purchase laptops. \textit{See} \textit{McCreary, supra} note 13, at 990 nn.2–3 (noting that, among others, Northwestern Law requires students to have a computer and Saint Louis University School of Law highly recommends students purchase a laptop). Professors may also incur costs by barring laptops because students may resent the ban and that resentment may be reflected in weaker course evaluations or in other ways. \textit{See} Maxwell, \textit{supra} note 21, para. 46–47 (discussing the possibility of “poor teacher evaluations” and “an adversarial and resentful relationship in the classroom”).
\textsuperscript{47}For other scholarship addressing this question, see \textit{McCreary, supra} note 13, at 991 (“The question should be whether banning laptops from the law school classroom is the best thing we can do for our students—having considered all of their concerns.”).
\textsuperscript{48}Studies have also raised questions about how much aid laptops actually provide. \textit{See} Anne L. Fay, Impact of Laptop Computers on Students’ Academic Lives 11 (2006) (unpublished manuscript) (on file with the Carnegie Mellon University), available at http://www.cmu.edu/teaching/resources/PublicationsArchives/StudiesWhitepapers/LaptopStudyReport-2006.pdf (“Although students reported spending significantly more time on their assignments when they had laptops, there was no relationship between time spent and grades.”).
In Kristen E. Murray’s words, laptops are a “powerful learning tool.” Some—perhaps many—students agree with her that laptops aid learning. Some students may take notes more efficiently on laptops, and may have an easier time converting those notes to an outline. They may be unaccustomed to taking notes manually and the quality of their notes may suffer if they are barred from using laptops. When David Thompson surveyed his students in the spring semester of 2007, 19 of 34 respondents said that laptops supported their learning in class “to a great degree”; another 11 reported that they did so “somewhat.” Only three said that laptops did “not very much” support their learning, and just one said they did not do so at all. The evidence is not conclusive. Thus, when forced to forgo laptops, nearly a third of the students responding to one survey who “usually or almost always use laptops” said they “paid better attention in class without laptops,” though a majority stated that they saw no difference in the level of their attention. Some students subject to a laptop ban reported that discussions were more involved, though others disagreed.

49 Murray, supra note 13, at 185. Of course, when professors integrate the use of laptops into instruction by, for example, having students employ them during class for assessment, laptops can be even more valuable in class. For a discussion of the ways professors use laptops during class to enhance instruction, see Barbara E. Weaver & Linda B. Nilson, Laptops in Class: What Are They Good For? What Can You Do with Them?, NEW DIRECTIONS FOR TEACHING & LEARNING, Spring 2005, at 3, 6–11 (survey of students found that 61% said they were more engaged in such classes while 86% of faculty so reported; 48% of students claimed they learned more in such classes than in traditional classes while 13% said they learned less); James Efaw, Scott Hampton, Silas Martinez & Scott Smith, Miracle or Menace: Teaching and Learning with Laptop Computers in the Classroom, 27 EDUCUSE Q., no. 3, 2004 at 10, 14 (“Students of instructors who integrated laptop computers into their classroom strategies . . . scored significantly higher on all six exams and the final exam than students of instructors who used traditional instructional and note-taking methods . . .”).

50 See Murray, supra note 13, at 200 (“While recognizing the potential for distraction, most [students responding to a survey] felt that the benefits outweighed the distraction. . . . [W]hat I learned from the survey data—and other research on adult learning, learning styles, technology, and generational studies—is that professors should allow, if not welcome, laptops into the law school classroom because the net benefit of allowing students to use them outweighs the countervailing considerations.”).

51 See McCreary, supra note 13, at 1035 (72.4% of laptop users forced to give up laptops in class believed the quality of their notes was weaker); Tracy McGaugh, Laptops in the Classroom: Pondering the Possibilities, 14 PERSP.: TEACHING LEGAL RES. & WRITING 163, 164 (2006) (laptops are “faster and neater than handwriting”).

52 See McCreary, supra note 13, at 992 (“[F]or many . . . students, banning laptops would [do nothing more than] hinder their organizational skills, impede their time-management, and possibly force them to learn a new system of learning during the time when they are arguably facing the most difficult curriculum of study in their lives.”); McCreary, supra note 13, at 1019 (“Of all of the students who reported using laptops in class, 96.1% use them to take class notes. Over half of those students use their laptops to organize their notes while they take them.”).

53 Professor Thompson reported his results at the 2008 Meeting of the American Association of Law Schools on Jan. 3, 2008. The results reported here are taken from his slides, which are available at David I.C. Thompson, Laptops in the Classroom: Don’t Ban Them. Use Them (Jan. 3, 2008), http://law.du.edu/thomson/AALS2008/AALS2008(c)Day idThomson.pdf. See also Taylor, supra note 24, at 3 (reporting on survey with 34 student respondents in which 56% viewed laptops as a “slight positive” in learning and 18% described laptops as a “major positive”).

54 Thompson, supra note 53.

55 McCreary, supra note 13, at 1034.

56 See McCreary, supra note 13, at 1036 (noting that 56.9% and 46.9% of laptop users and non-laptop users, respectively, claimed not to have noticed a difference in class discussion; 32.7% and 46.9%, respectively, found the discussions more involved).
Some professors have already banned laptop use in the classroom. They offer a variety of arguments for doing so. Some complain that students use laptops as virtual dictation devices, taking down everything that is said during the class rather than weighing the points before deciding to write them down. Of course, another reason given for banning them is the distraction issue. This study obviously supports the claim that laptops generate temptations, and so strengthens the argument for banning laptops, at least for large survey-style upper-year classes.

57 See Maxwell, supra note 23, para. 48 (“Two days before the beginning of classes I sent out an e-mail to my students, informing them laptops, Blackberries and other electronic devices were not allowed in my classroom.”); McCreary, supra note 13, at 989 (professor noting that she bans laptops from the first rows of class only); Kevin Yamamoto, Banning Laptops in the Classroom: Is it Worth the Hassles?, 57 J. LEGAL EDUC. 477, 483 (2007) (listing examples of professors who ban laptops); Law Professor Bans Laptops in Class, Over Student Protest, USA TODAY, Mar. 21, 2006, http://www.usatoday.com/tech/news/2006-03-21-professor-laptop-ban_x.htm (discussing a University of Memphis law professor who banned laptops in her class).

58 See Maxwell, supra note 21, para. 6 (noting that students “were attempting to transcribe everything said in class”); Yamamoto, supra note 57, at 503 (“The process of transcribing, either by typing or the use of short-hand, seems to bypass the areas of critical thinking in the brain.”); Eric Chen, Laptops Nixed in Some Law Classes: Profs Split on Whether the Devices are Bane or Boon for Learning, DAILY PENNSYLVANIAN, Apr. 13, 2006 (paraphrasing Univ. of Penn. Law School professor to the effect that “students are more focused and engaged without laptops”); Law Professor Bans Laptops in Class, Over Student Protest, supra note 57 (“My main concern was they were focusing on trying to transcribe every word that was I saying, rather than thinking and analyzing”); see also McGaugh, supra note 51 (noting that one downfall of laptop use is that such use “encourages taking dictation rather than synthesis and organization of material”). For criticism of this view, see McCreary, supra note 13, at 1000–01, 1003 (noting that “[m]ost professors claiming laptops have a detrimental effect on note taking do so without any supporting authority for their assumptions,” and arguing that the exception—Professor Yamamoto—relies on studies that are inapplicable to legal education. “Additionally, students who are able to write fast may very well continue to take nearly verbatim notes. Should professors, then, ban pen and paper from classrooms? Should professors inspect students’ notes to see if anyone used short-hand to take nearly verbatim notes?”); Murray, supra note 13, at 202–04 (arguing that some students benefit from transcript-like notes and reporting that 70.5% of students in survey stated that they use laptops to take down important points in notes rather than record everything said).

59 Not everyone agrees that students are distracted by using laptops for non-class purposes. Thus, Murray, supra note 13, at 212, reports based on her survey of students that “[t]he overwhelming number of students found that their class-related activities involving their laptops had little effect on their ability to follow discussions in class. Of the students who said they engaged in class-related activities during class, 61.8% said they ‘never miss anything’ or ‘occasionally miss something minor.’”

Of course, this claim raises questions about how students who are not paying attention could know that what they missed was minor, or even that they have not missed anything. In addition, as noted supra note 24, some empirical evidence shows that students under-report the amount they use laptops for non-class purposes; it is therefore also plausible that they under-report how much they miss.

60 The methodological limits discussed supra Part II, limit what the data add to the argument. Students who have chosen to take a smaller specialized class because of a particular interest in the subject may be less tempted to use laptops. Alternatively, professors can more readily move around in such classes to police non-class laptop use. See Maxwell, supra note 21, para. 9 (noting that a professor “walks around the classroom . . . When he finds a student on the Internet, he prohibits the student from bringing the laptop to class in the future.”).
But several arguments against such bans exist. First, a laptop ban is paternalistic. Some believe that students, in their role as consumers of education, should be able to make the judgment that they do not have to pay attention in class. A variant of this argument depends on the fact that as long as students are tested on the subject, they will still have to learn it; they just may learn it outside of class. Under this view, students should be able to choose for themselves whether they will learn the material by paying attention in class or mastering it outside of class—or not learn it at all.

Another argument arises from the suggestion of this study that students are responding to an absence of incentives to pay attention when they tune out. In Barbara Glesner Fines’ words, “[w]hile the distractions are new, the issue is as old as daydreaming.” Those incentives will be just as absent even if laptops are barred, and so students might seek other distractions—with the result that students will incur the cost of doing without laptops without any corresponding gains. Jana McCreary’s survey found that 29% of the students claimed they would “daydream anyway” if laptops were banned. Students may text—something that is harder for professors to ban than laptops, because it is more difficult to see a cell phone than to spot a laptop. Because students can surf the web and play solitaire on smartphones, laptop bans may not even eliminate many distractions. But they will make it impossible for students to use laptops appropriately during class.

Counter-arguments certainly exist. Some states have already rejected the paternalism argument. These states require law schools to certify that students have been in regular attendance. Presumably they wish students not just to attend class but also to pay attention. As a thought experiment, imagine an applicant to the bar before a character committee in such a

61 See Maxwell, supra note 21, para. 7 (“[S]ome professors took the position that students were adults and they should be able to decide how to use their class time, risking whatever consequences may result from their behavior.”); see also Mangan, supra note 6 (quoting investment banker and business school graduate Christian Lown: “People who are going to graduate school should be at a stage in their life where they take responsibility for their actions. . . . What you want to get out of school should be your business.”).

62 Computers in the Classroom, LAW TCHR., Spring 2003, at 6, 7.

63 See Maxwell, supra note 21, para. 7 (“[S]tudents have always found ways to disengage from the classroom, such as working on crossword puzzles, reading other material, or simply daydreaming.”); Avi Zenilman, The Rules of Distraction, SLATE (Nov. 18, 2005), http://slate.com/id/2130600 (questioning whether laptop distractions are “worse than the old-fashioned ones—doodling, dozing, reading, playing footsie, passing notes?”). Maxwell also notes that some suggest that “if the class was more interesting and engaging, then students would not be tempted to ‘check out’ of class by using their laptops as a diversion from engaging in class.” Maxwell, supra note 21, para. 17.

64 McCreary, supra note 13, at 1024.

65 This assumes that cell phones are usable in the classroom; in most of our classrooms, for example, that is the case, but in some basement rooms, cell phones cannot connect to the network.

66 See McCreary, supra note 13, at 1003 (“[B]anning laptops would do nothing but punish . . . [students who use laptops effectively] and strip them of a useful educational tool.”).

67 See, e.g., NYS Board of Law Examiners, Law School Certificate of Attendance Form, http://www.nybarexam.org/Docs/LawSchoolCert.pdf (last visited Aug. 22, 2011) (requiring that law schools certify a student “was in good and regular attendance”); see also ABA STANDARDS FOR APPROVAL OF LAW SCHOOLS § 304(d) (2010) (“A law school shall require regular and punctual class attendance.”).
state defending surfing the web during class. Or imagine visiting a doctor for an ailment and learning that the doctor was playing solitaire when the ailment was taught. Law professors not only have an obligation to their students; they also have an obligation to the clients their students will someday represent. That obligation suggests that students should not have the last word on what they attend to during class.

The anti-paternalism argument assumes that paying attention in class affects student performance later on in their careers. This study did not compare the grades of distracted students with attentive students, and so it cannot demonstrate that students’ mastery of material correlates with paying attention in class. But while this study did not demonstrate that paying attention in class yields greater mastery, it also did not demonstrate the converse. Though no study appears to address specifically whether the performance of law students suffers when they are multitasking, the existing evidence does suggest that multitasking impairs student performance. Studies of student performance in non-law school contexts offer lukewarm support for the proposition that students who are distracted by laptops perform less well on tests of learning while other studies have found that multitasking degrades the quality of some tasks.

The study did not examine the grades of distracted students for several reasons. Chief among these is that it is impossible to conceal from the observers and other students which students are distracted, and so reporting the grades of those who were distracted, even if aggregated, would have risked a breach of privacy.

For an example of one study, see Kraushaar & Novak, supra note 21, where the authors placed spyware on consenting students’ laptops. They found “limited and mixed support for the hypothesis that a higher frequency of multitasking is correlated with lower academic performance levels”. and that “students who allocate more cognitive resources to generating distractive rather than productive software windows exhibit lower academic performance.” Id. at 249. Additionally, see Helene Hembrooke & Geri Gay, The Laptop and the Lecture: The Effects of Multitasking in Learning Environments, 15 J. COMPUTING IN HIGHER EDUC. 46, 53, 59–61 (2003), discussing that on a quiz following a lecture,

[S]tudents in the open laptop condition perform[ed] significantly poorer than those in the closed laptop condition . . . .

. . . . The sustained distraction, regardless of content relevance appears to be the nemesis of the multitasker; if one is adroit at staccato-like browsing, processing multiple inputs simultaneously may not suffer to the same extent.

. . . . While students were obviously distracted by having access to the Internet . . . as evidenced by their performance on traditional tests of memory, their performance in the class overall does not reflect this same disruption. The average final grade for the class was a strong B+, and students had been multitasking in class since the beginning of the semester. The structure of the class was nontraditional, highly interactive and dynamic . . . . Had the class been more traditional and grades determined by conventional tests of memory, the outcome may have been different.

. . . . [T]here is also the possibility that over time, students became increasingly adept at multitasking in the classroom setting.

See Brian P. Bailey & Joseph A. Konstan, On the Need for Attention-Aware Systems: Measuring Effects of Interruptions on Task Performance, Error Rate, and Affective State, 22 COMPUTERS IN HUM. BEHAV. 685, 685, 701-02, 705 (2006) (“[W]hen peripheral tasks interrupt the execution of primary tasks, users require from 3% to 27% more time to complete the tasks, commit twice the number of errors across tasks, experience from 31% to 106% more annoyance, and experience twice the increase in anxiety than when those same peripheral tasks are presented
Even students acknowledge that laptop use causes them to miss information in class.\textsuperscript{71} All this is consistent with Tim Hurley’s intuition that “[s]tudents cannot possibly learn everything from class when they have four conversations going and a solitaire game.”\textsuperscript{72} And of course, the traditional view is that classes enhance learning. In that light, those who argue that using laptops for non-class purposes does not affect performance in law school should bear the burden of proof.

It is certainly possible that laptop advocates can carry that burden. Perhaps future studies will show that law student performance does not suffer from multitasking. The fact that distraction seems not to be sticky lends some support to the notion that students gain something

\begin{quote}
\textsuperscript{71} See McCreary, supra note 13, at 1026 ("Between 45% and 50% of students admitted that they had missed something said in class due to their own laptop usage.").
\end{quote}

\begin{quote}
\textsuperscript{72} Hurley, supra note 21.
\end{quote}
from class even when they are distracted, because it suggests that they can retain enough of a hold on what is being covered that they can return to an attentive state and learn. In trying to carry the burden, laptop advocates should also take into account the possibility that when large numbers of students ignore classes, the curve may be affected, creating the illusion that attending to classes does not matter. In other words, when many students disregard what is happening in the classroom, overall learning may be impacted, resulting in students attaining the same grade with a weaker performance. As a result, laptops may impair learning without affecting grades.

Laptops may also affect students who do not use them themselves. Some students reportedly find their use by others distracting. Moreover, to the extent that distracted students do not participate in class discussions, they may diminish the quality of other students’ learning.

Finally, eliminating laptops may affect student behavior by eliminating one temptation. Allowing students to have laptops is like placing beer in front of alcoholics. Indeed, because students can see other students using laptops for non-class purposes, it may be comparable to placing beer in front of alcoholics as they watch other alcoholics imbibing.

Students face extra temptations when they have laptops—temptations some find impossible to resist. Take away the laptops and perhaps students will resist the remaining temptations they face. Banning laptops does not affect the incentive to pay attention, but it does affect the temptations students experience. For example, imagine a professor conducting class while projecting a silent movie or a conventional movie with closed captioning on a screen overhead (students can, in fact, watch movies on laptops). It is hard to believe that the level of

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73 See Maxwell, supra note 21, para. 7, (“[A] laptop screen, displaying a colorful and motion-filled game or Internet site, is far more distracting to others than a student working on a crossword puzzle.”); Maxwell, supra note 21, para. 50 (reporting that one student “found the use of laptops distracting because of the noise of the key tapping”); McCreary, supra note 13, at 989 (“[S]ome students cannot resist the temptation to look at another student’s screen and therefore need a place to sit in the classroom free from distraction.”); Yamamoto, supra note 57, at 488 (“One person [using a laptop] in the front row can distract almost the entire class if the screen is large, and what he is viewing is provocative.”); Computers in the Classroom, supra note 62, at 6 (describing how Professor Daniel A. Levin was distracted by another’s laptop use when he took a seminar). But when David Thompson asked students whether they found laptop use by others distracting, out of 31 respondents, 16 said that they “very rarely” found them so, and another 12 said “rarely”; two stated that they were “often” distracted, and one said “very often.” Thompson, supra note 53. See also McCreary, supra note 13, at 1030 (more than half of laptop users report never missing anything in class as a result of looking at another laptop screen while only 20% of non-laptop users make a similar claim); Murray, supra note 13, at 213 (“Thirty-seven percent of respondents said that they have never been distracted by the laptop-related activities of their classmates. No activity commonly believed to be a potential distraction affected more than half of the students surveyed.”)

74 See Maxwell, supra note 21, para. 27 (“One tracker stated ‘that laptops diminish classroom discussion because some people are not paying attention and when the discussion happens upon them, they are unprepared to respond.’”)

75 See Mangan, supra note 6 (quoting Elliott N. Weiss, associate dean at University of Virginia’s Darden School of Business, that “having Internet access [in class] was like placing a big bowl of candy in front of students . . . [t]hey’d eat, whether they were hungry or not.”).

76 Cf. Daniel de Vise, Wide Web of Diversions Gets Laptops Evicted from Lecture Halls, WASH. POST, Mar. 9, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/03/08/AR2010030804915.html (quoting Georgetown Law Professor David Cole saying that allowing laptops in class “is like putting on every student’s desk, when you
For my classes, the option I have chosen is to balance the value of laptops against the likelihood of distraction. The study suggests that first-semester students use laptops for non-class purposes much less than upper-year students and so as of this writing, my inclination is to permit laptop use in first-semester classes, but not upper-year courses. 78

V. Conclusion--and a Plea

This study has found that many students are significantly distracted in law school classes. If educators required upper-year survey classes to meet the 85% attention threshold reached by Sesame Street segments, the upper-year classes studied in this paper would have been cancelled. For many upper-year students, temptation trumps incentive. For first-years, however, the news is more encouraging.

Because of the methodological limits described above in Part II, however, it is difficult to be certain of the extent to which the study reflects the behavior of law students or students generally. And so, a plea: I hope others will conduct similar studies. 79 Professors may benefit from conducting similar studies in their own classes because they may learn how to increase student attention—thereby, presumably, enhancing learning—or what increases distracted behavior, which professors presumably wish to avoid, all other things being equal.

In addition, more data would shed greater light on what conduct increases student attention and distraction. That data should inform professors generally in their teaching. It will also eliminate some of the methodological problems with this study. Students in other classes and disciplines may behave differently. They may face different incentives, or their behavior may not respond to incentives. If we want to enhance student learning, we must ourselves learn more about when it occurs in the classroom. If the producers of Sesame Street can choose what to show based on their audience’s attention, can professors afford to do less?

77 This discussion assumes that students without laptops are less tempted to tune out than students with laptops. This study sheds no light on the validity of that assumption, because it did not attempt to measure the engagement of laptop-less students. Professors who view the assumption as invalid should not ban laptops, on the theory that learning will suffer under such a ban, but attention will be no greater.

78 In Intro, I plan to permit laptops until the regular classes begin.

79 A student suggested that future studies might also profitably evaluate whether students using laptops performed better in class than those not using laptops when called on in class.
Table 1: Number and Percentage of Students Using Laptops for Non-Class Purposes in Upper Year Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Total Number of Laptops Observed</th>
<th>Number who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Number who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Number who Used Laptops for Non-Class Purposes More than 5 Minutes but Less Than Half the Class</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Number who Used Laptops for Non-Class Purposes for at Least Half the Class</th>
<th>Percentage who Used Laptops for at Least Half of the Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>146</td>
<td>5</td>
<td>3.42%</td>
<td>9</td>
<td>6.16%</td>
<td>42</td>
<td>28.77%</td>
<td>90</td>
<td>61.64%</td>
</tr>
<tr>
<td>B</td>
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<td>3.03%</td>
<td>1</td>
<td>3.03%</td>
<td>5</td>
<td>15.15%</td>
<td>26</td>
<td>78.79%</td>
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<td>43</td>
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<td>113</td>
<td>29.20%</td>
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Table 2: Number and Percentage of Students Using Laptops for Non-Class Purposes in Class A

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<tr>
<th>Session</th>
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<th>Number who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Number who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Number who Used Laptops for Non-Class Purposes More than 5 Minutes but Less than Half the Class</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Number who Used Laptops for Non-Class Purposes for at Least Half the Class</th>
<th>Percentage who Used Laptops for Non-Class Purposes for at Least Half of the Class</th>
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<td>55.56%</td>
</tr>
<tr>
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<td>9</td>
<td>1</td>
<td>11.11%</td>
<td>0</td>
<td>0.00%</td>
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<td>33.33%</td>
<td>55.56%</td>
<td>55.56%</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
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<td>70.00%</td>
</tr>
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</tr>
<tr>
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<td>55.56%</td>
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<td><strong>Total</strong></td>
<td><strong>146</strong></td>
<td><strong>5</strong></td>
<td><strong>3.42%</strong></td>
<td><strong>9</strong></td>
<td><strong>6.16%</strong></td>
<td><strong>42</strong></td>
<td><strong>28.77%</strong></td>
<td><strong>90</strong></td>
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</table>
Table 3: Number and Percentage of Students Using Laptops for Non-Class Purposes in Class B

<table>
<thead>
<tr>
<th>Session</th>
<th>Total Number of Laptops Observed</th>
<th>Number who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Number who Used Laptops for Non-Class Purposes</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Number who Used Laptops for Non-Class Purposes for at Least Half of the Class</th>
<th>Percentage who Used Laptops for Non-Class Purposes for at Least Half of the Class</th>
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</thead>
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<td>11</td>
<td>100.00%</td>
</tr>
<tr>
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<td>7.14%</td>
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<td>25.00%</td>
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<tr>
<td>Total</td>
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<td>3.03%</td>
<td>1</td>
<td>3.03%</td>
<td>5</td>
<td>15.15%</td>
</tr>
</tbody>
</table>

Percentage: 78.79%
Table 4: Number and Percentage of Students Using Laptops for Non-Class Purposes in Class C

<table>
<thead>
<tr>
<th>Session</th>
<th>Total Number of Laptops Observed</th>
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<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
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Table 7: Number and Percentage of Students Using Laptops for Non-Class Purposes in Intro to Law

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Table 8: Distraction Levels for Classes by Activity

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Table 8: Distraction Levels for Classes by Activity

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Table 8: Distraction Levels for Classes by Activity

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<th>TRANSITIONS, INTRODUCTIONS AND CONCLUDING COMMENTS</th>
<th>CASE FACTS</th>
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Table 8: Distraction Levels for Classes by Activity

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<td>469</td>
<td>35.00%</td>
</tr>
<tr>
<td>B</td>
<td>71</td>
<td>32</td>
<td>45.07%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>52</td>
<td>21</td>
<td>40.38%</td>
<td>12</td>
<td>5</td>
<td>41.67%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>65</td>
<td>16</td>
<td>24.62%</td>
<td>425</td>
<td>133</td>
<td>31.29%</td>
<td>558</td>
<td>143</td>
<td>25.63%</td>
</tr>
<tr>
<td><strong>Total for Upper-Year Classes</strong></td>
<td>108</td>
<td>32</td>
<td>29.63%</td>
<td>1181</td>
<td>428</td>
<td>36.24%</td>
<td>1910</td>
<td>617</td>
<td>32.30%</td>
</tr>
<tr>
<td></td>
<td><strong>Civil Procedure</strong></td>
<td></td>
<td></td>
<td><strong>Introduction to Law</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>Total for First-Semester Classes</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>479</td>
<td>76</td>
<td>15.87%</td>
<td>1319</td>
<td>198</td>
<td>15.01%</td>
<td>4292</td>
<td>470</td>
<td>10.95%</td>
</tr>
<tr>
<td></td>
<td>62</td>
<td>8</td>
<td>12.90%</td>
<td>156</td>
<td>21</td>
<td>13.46%</td>
<td>180</td>
<td>48</td>
<td>26.67%</td>
</tr>
<tr>
<td></td>
<td><strong>Total for First-Semester Classes</strong></td>
<td>541</td>
<td>84</td>
<td>15.53%</td>
<td>1475</td>
<td>219</td>
<td>14.85%</td>
<td>4472</td>
<td>518</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td>649</td>
<td>116</td>
<td>17.87%</td>
<td>2656</td>
<td>647</td>
<td>24.36%</td>
<td>6382</td>
<td>1135</td>
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</table>
Table 8: Distraction Levels for Classes by Activity

<table>
<thead>
<tr>
<th>Class</th>
<th>HYPOTHETICAL AND PROBLEMS</th>
<th>EXAMPLES</th>
<th>POLICY DISCUSSION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opportunities</td>
<td>Number Distracted</td>
<td>Percentage Distracted</td>
</tr>
<tr>
<td>A</td>
<td>705</td>
<td>289</td>
<td>40.99%</td>
</tr>
<tr>
<td>B</td>
<td>127</td>
<td>47</td>
<td>37.01%</td>
</tr>
<tr>
<td>C</td>
<td>14</td>
<td>5</td>
<td>35.71%</td>
</tr>
<tr>
<td>D</td>
<td>1524</td>
<td>459</td>
<td>30.12%</td>
</tr>
<tr>
<td>Total for Upper-Year Classes</td>
<td>2370</td>
<td>800</td>
<td>33.76%</td>
</tr>
<tr>
<td>Civil Procedure</td>
<td>3590</td>
<td>615</td>
<td>17.13%</td>
</tr>
<tr>
<td>Introduction to Law</td>
<td>297</td>
<td>75</td>
<td>25.25%</td>
</tr>
<tr>
<td>Total for First-Semester Classes</td>
<td>3887</td>
<td>690</td>
<td>17.75%</td>
</tr>
<tr>
<td>Total</td>
<td>6257</td>
<td>1490</td>
<td>23.81%</td>
</tr>
</tbody>
</table>
Table 8: Distraction Levels for Classes by Activity

<table>
<thead>
<tr>
<th>Class</th>
<th>VISUAL AIDS</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opportunities</td>
<td>Number Distracted</td>
<td>Percentage Distracted</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>10</td>
<td>2</td>
<td>20.00%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>100</td>
<td>45</td>
<td>45.00%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>252</td>
<td>84</td>
<td>33.33%</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total for Upper-Year Classes</td>
<td>362</td>
<td>131</td>
<td>36.19%</td>
<td></td>
</tr>
<tr>
<td>Civil Procedure</td>
<td>3231</td>
<td>302</td>
<td>9.35%</td>
<td></td>
</tr>
<tr>
<td>Introduction to Law</td>
<td>397</td>
<td>60</td>
<td>15.11%</td>
<td></td>
</tr>
<tr>
<td>Total for First-Semester Classes</td>
<td>3628</td>
<td>362</td>
<td>9.98%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3990</td>
<td>493</td>
<td>12.36%</td>
<td></td>
</tr>
</tbody>
</table>
Table 9: Number of Times the Amount of Distracted Students Increases or Decreases in Selected Classes

<table>
<thead>
<tr>
<th>Stickiness of Laptop Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table 10: Amount of Distraction by Month

<table>
<thead>
<tr>
<th>Class</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Percentage who Used Laptops for at Least Half of the Class</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Percentage who Used Laptops for at Least Half of the Class</th>
<th>Percentage who Never Used Laptops for Non-Class Purposes</th>
<th>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</th>
<th>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</th>
<th>Percentage who Used Laptops for at Least Half of the Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>Percentage who Never Used Laptops for Non-Class Purposes</td>
<td>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</td>
<td>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</td>
<td>Percentage who Used Laptops for at Least Half of the Class</td>
<td>Percentage who Never Used Laptops for Non-Class Purposes</td>
<td>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</td>
<td>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</td>
<td>Percentage who Used Laptops for at Least Half of the Class</td>
<td>Percentage who Never Used Laptops for Non-Class Purposes</td>
<td>Percentage who Used Laptops for Non-Class Purposes for 5 Minutes or Less</td>
<td>Percentage who Used Laptops for More than 5 Minutes but Less than Half the Class</td>
<td>Percentage who Used Laptops for at Least Half of the Class</td>
</tr>
<tr>
<td>A</td>
<td>4.55%</td>
<td>6.82%</td>
<td>25.00%</td>
<td>63.64%</td>
<td>4.76%</td>
<td>6.35%</td>
<td>26.98%</td>
<td>61.90%</td>
<td>0.00%</td>
<td>5.13%</td>
<td>35.90%</td>
<td>58.97%</td>
</tr>
<tr>
<td>D</td>
<td>14.29%</td>
<td>12.50%</td>
<td>25.00%</td>
<td>48.21%</td>
<td>12.50%</td>
<td>7.81%</td>
<td>28.13%</td>
<td>51.56%</td>
<td>0.00%</td>
<td>14.29%</td>
<td>31.43%</td>
<td>54.29%</td>
</tr>
<tr>
<td>Civil Procedure</td>
<td>46.41%</td>
<td>21.53%</td>
<td>28.71%</td>
<td>3.35%</td>
<td>42.01%</td>
<td>21.00%</td>
<td>33.33%</td>
<td>3.65%</td>
<td>38.52%</td>
<td>16.30%</td>
<td>37.04%</td>
<td>7.41%</td>
</tr>
</tbody>
</table>
Figure 1: Percentage of Students Using Laptops for Non-Class Purposes
Figure 3 - Distraction by Activity for All Upper Year Classes
Figure 4 - Distraction Levels by Activity for All Civil Procedure Classes