The Internet Landscape in College

STEVE JONES, CAMILLE JOHNSON-YALE, FRANCISCO SEOANE PÉREZ, AND JESSICA SCHULER

It goes without saying that in the United States college students are Internet users. A 2002 Pew Internet and American Life Project report titled "The Internet Goes to College" (Jones, 2002)[1] made it abundantly clear that college students were indeed regular users of the Internet (74% of those surveyed reportedly using the Internet 4 or more hours per week). This is not surprising in light of the development of Internet technologies themselves. Many applications (Napster and Facebook, for instance) were created by college students, on college campuses, and targeted college student users (who took them up in droves). The Internet itself was initially developed at research universities and some of the earliest Internet users were college students.

Since that 2002 report much has changed about the Internet and its users. In the United States Internet adoption has continued to grow, and minority users, previously less well-represented, have increasingly gone online. So-called "Web 2.0" technologies (social networking, video sharing, etc.) have become prominent. And a generation of college students has come and gone. Pew undertook a follow-up study of college students' Internet use in 2005 to get a better sense of today's college students' Internet use and to determine whether there were any differences in use since the 2002 survey. The goal of this chapter is to report key results from this research (which at this time has not yet been published) and to draw conclusions from the data that documents the differences between students' and professors' use of and attitudes toward Internet technologies, along with the potential impact of these differences.

Steve Jones is Professor of Communication and Associate Dean of Liberal Arts and Sciences at the University of Illinois at Chicago and Senior Research Fellow at the Pew Internet and American Life Project. Camille Johnson-Yale is a doctoral candidate in the Institute of Communications Research at the University of Illinois, Urbana-Champaign. Francisco Seoane Pérez is a Ph.D. student at the Institute of Communications Studies at the University of Leeds. Jessica Schuler is a Master's student in Communication at the University of Illinois at Chicago.

TABLE 1
GENDER

	2005 Survey (%)	NCES Survey (%)
Men	43.5	42.5
Women	56.5	57.5

NCES, National Center for Education Statistics.

TABLE 2
RACE

	2005 Survey (%)	NCES Survey (%)
Black	11.7	12.0
American Indian	1.0	1.0
Asian	6.1	5.9
Latino	9.7	11.0
White	64.9	59.5
Missing/Unknown	6.7	7.5

NCES, National Center for Education Statistics.

Our research is based on the findings from an online survey given to college students at 2-year and 4-year public and private colleges and universities in the continental United States during the spring 2005 academic term. Invitations to participate were sent via email to every student at 29 college campuses, and to a random sample of students stratified by class (freshman, sophomore, etc.) at 11 other campuses. In all, 7,421 surveys were completed. Participants and their colleges remain anonymous in this report, as the surveys asked questions regarding students' feelings and attitudes about certain aspects of Internet usage along with other information that might have been considered personal, sensitive, or critical of their college.

The campuses were chosen to represent a broad cross-section of higher education institutions in the United States (public/private, flagship/regional, urban/rural, research-oriented/teaching-oriented, etc.). The overall sample was also tested against demographic data for all U.S. college students as reported by the National Center for Education Statistics (NCES).[2] In both cases (individual campuses and overall) the samples were tested against known population parameters (gender, race, age; see Tables 1–3) and found to be reflective of the national population of college students as reported by *The Chronicle* and reflective of individual campus student populations. For results based on the total sample, we can say with 95% confidence that the error attrib-

TABLE 3
AGE

	2005 Survey (%)	NCES Survey (%)
14–17	—	1.5
18–19	25.1	28.7
20–21	34.2	28.2
22–24	21.2	19.2

NCES, National Center for Education Statistics.

utable to sampling and other random effects is plus or minus one percentage point. In addition to sampling error, question wording and practical difficulties in conducting surveys may introduce some error or bias into the findings.

In addition to the surveys, ethnographic data was collected during the fall 2005, spring 2006, and fall 2006 academic terms by a team of graduate and undergraduate student researchers from the University of Illinois at Chicago. The researchers were recruited to observe the behaviors of college students at several institutions of higher education in the upper Midwest. The researchers were trained in ethnographic methods of observation and data collecting, and rotated the times of the day and days of the week they spent in various public settings where college students could be found using the Internet.

Academic Uses of the Internet

General Activities and Attitudes

College students continue to have a positive opinion about the Internet's impact on their educational experience. The percentage of college students with a positive opinion has risen to 84%, compared to 79% in the 2002 survey. On the other hand, 7% of today's students disagree with a positive assessment of the Internet's impact on their academic experience, compared to 4% in the 2002 survey. Far fewer are now of the belief that its impact has been neutral, with 8% choosing that response today compared with the 16% who chose it in 2002. While these figures do not portend a very strong shift in students' assessment of the Internet in relation to their academic life, they may be evidence of a shift nevertheless, and will be worth tracking over time.

No matter their assessment, all college students (100%) use the Internet for information searching. Their preferred means of information searching are search engines such as Google or Yahoo! (95% of

college students reported using those), followed by library websites (68%), news websites (64%), and online encyclopedias (48%).

Communications with Professors

The vast majority of college students surveyed (84%) are using the Internet to communicate with professors, a number similar to the 2002 figure (87%). Email is the most popular method for doing so, with 79% of college students using it to reach their instructors. Course websites and email lists were also popular means of communication with professors, with about one-quarter (23%) using email lists and close to half (45%) using course websites. Instant messaging (IM), wikis, and chat rooms represented only a small percentage of students' means of communication with faculty (4% combined). Although email continues to be most used by students to get in touch with professors, it is less used now than was reported in 2002, when 94% of college students reported using it. Email lists and course websites have risen in popularity since 2002, when 8% and 20% of students reported using those (respectively). In 2005 only 6% of college faculty reported using email lists, although 55% reported using course websites (Jones & Johnson-Yale, 2005).

Frequency. Students generally stated that the frequency of their communications with professors via the Internet is seldom or rare, with most having contact every 2 weeks or less (61%). Only about one in eight (12%) described themselves as being in frequent or very frequent contact with professors via the Internet (defined as several times a day or week). However, those who reported contacting their professors occasionally—about once a week—has more than doubled since 2002, from 11 to 26%. Fewer than half (43%) report that they are required by professors to use email to contact them, but nearly all students (92%) reported that they used email to contact professors.

Purpose. At least half the students cited the following as a primary reason for emailing professors: to report an absence (68%), for clarification of an assignment (68%), to set up an appointment (57%), and to discuss or find out a grade (56%). Over three quarters (78%) of students surveyed had emailed assignments to professors. These results are consistent with those collected in the 2002 college student survey. Additional reasons for contact with professors provided by today's college students included alerting their instructors to websites or information related to class and asking for recommendation letters. Conversely, the

primary reasons, according to students, that professors contact them via the Internet are to share class announcements (74%), information about class assignments (68%), and additional course material and information (58%). Less than half (42%) reported that they received feedback via the Internet from professors on class assignments. Students felt that professors were less likely to use email to send grades (44%), discuss course-related problems or complaints (41%), or handle attendance matters (16%).

Relationships. Just over half (53%) of students felt that they had more face-to-face than email communication with professors, although one in five (18%) felt they had more communication with professors via email. These findings are consistent with student responses in the 2002 report. However, college students appear slightly less satisfied than they were in 2002 with email as a communication tool for expressing ideas to professors. Thirty-eight percent of students agreed or strongly agreed that email allowed them to express ideas to professors that they would not have expressed in class, down from 46% in 2002. Close to half (44%) of students did not believe they knew their professors any better because of email contact with them; the same number disagreed or strongly disagreed that their professors knew *them* better because of email. Those who felt email had enhanced their relationships made up about a quarter of respondents—24% agreed or strongly agreed that they knew their professors better, and 26% agreed or strongly agreed that their professors knew them better as a result of email correspondence. These findings are consistent with student responses from 2002, and point toward email serving a functional, rather than personal, purpose in regard to student–professor communication.

Interviews with college students revealed that they made very conscious decisions about which medium to use to communicate with professors. Several said they often felt uneasy talking to their professors in person, and even more awkward speaking to them on the phone. One student described feeling like it was an "intrusion into [a professor's] personal life" to call them on their cell phone, even if the professor gave the class his or her cell phone number. The students generally agreed that email seemed the least personal contact method, and that meeting with a professor after class was usually less time consuming and more relevant to the students' interests. But students also agreed that email led to less pressure on them, because, for instance, a professor could not ask them questions to which they would have to respond immediately, as would be the case in a face-to-face meeting. Some students also

mentioned hesitation about using the telephone to call a professor based on a concern about calling at an awkward or inconvenient time and getting on his or her "bad side" as a result.

Nevertheless, half of college students surveyed (51%) felt that email in particular had improved their interactions with professors and only 2% felt that email had worsened their interactions with professors. When evaluating the impact of Internet communication on the overall quality of their relationships with professors, almost half (47%) agreed or strongly agreed that the Internet has had a positive impact.

Internet Communication with Classmates

More than three-quarters (78%) of college students use the Internet to communicate with one another about their classes. Email and IM are the most common means of communication (55% and 33%, respectively), but in response to open-ended questions, some students also reported using Facebook for academic purposes. While 40% of students reported that they were required to use the Internet to communicate with classmates, more of them (58%) reported that they were not required to do so. Unlike their communications with professors, students were more frequently in contact with classmates via the Internet, with 30% reporting communicating with classmates several times a week and 8% reporting daily contact. Over half (55%), though, described their contact with classmates online as seldom (every few weeks) to rare (once or twice per semester/term).

Collaboration on group projects was the primary reason cited by students for contacting other classmates using the Internet, with 55% of college students reporting it as their reason for such contact. Exchanging notes (47%) and studying for exams (43%) were also common reasons. Many students reported that they often contacted classmates for assignment clarifications and to find out what work they had missed after missing a class meeting. Students' feelings about the impact of the Internet on their relationships with fellow students were about the same as those found in our 2002 report. About two-thirds (63%) were in agreement that the Internet had had a positive impact on their relationships with classmates, while only about 5% disagreed with that assessment.

College Students and Online-Only Courses

Much has been written about online education, and much research has been undertaken to try to determine the value of the Internet for teaching and learning. There are likely very few courses at U.S. colleges

that do not employ the Internet in some way or another, even if it is only to use courseware or to facilitate communication between professors and students. "Blended" or "hybrid" courses, courses that use the Internet in lieu of some (but not all) class meetings, lectures, discussions, etc. are increasingly common at many U.S. college campuses, according to a 2007 report from the Sloan Consortium, Eduventures, and the Babson Survey Research Group (Allen, Seaman, & Garrett, 2007).

Since the 2002 Pew report of college students' Internet use, there appears to have been a substantial increase in the number of students who have taken an online-only course, from around 6% in 2002 to over one-quarter (27%) of today's college students. The latter are also more satisfied with the quality of online-only courses than those surveyed in 2002. About two-thirds (67%) reported that taking an online-only course was a satisfying experience, and almost as many (61%) said an online-only course was worth their tuition dollars.

By comparison, however, only about one in four (27%) felt the online learning experience was comparable to a traditional, face-to-face course. Interestingly, around half (53%) felt they learned less in their online course than they might have learned in the same class meeting face to face. This finding is consistent with our 2002 report data. In terms of course difficulty, 20% of students actually felt the online course was *more* difficult than a traditional face-to-face equivalent would have been. Another 42% felt their online course was easier than a traditional course; one-third (36%) neither agreed nor disagreed when asked whether the online-only course was harder or easier than the traditional equivalent.

The majority of students (69%) who had taken online-only courses reported that the course they took was not offered by colleges other than the one from which they were going to earn their degree; in other words, the course was unique and not available elsewhere.

Academic Dishonesty and the Internet

Plagiarism has long bedeviled Internet use in education. Websites such as http://www.turnitin.com that purport to detect plagiarism have proliferated amid claims that the Internet has made it easier than ever to copy and paste others' work into one's papers or homework assignments. Some teachers use search engines to detect whether parts of a paper may be found online, indicating that a student may have copied and pasted it. There are many websites that sell term papers on numerous topics. Given recent trends in the use of collaborative online technologies (such as wikis), some students may believe that it is all right to

copy and paste someone else's material, or to turn in material they may not have entirely authored themselves. As the waters are still as muddy as when the web first gained widespread use, it is important to know students' opinions and ideas about, as well as behaviors related to, this type of cheating.

Fewer than 2% of college students admitted submitting an assignment to a professor in which they had copied and pasted material from the Internet and claimed it as their own. Only 25 of the over 7,000 college students surveyed reported having purchased a paper online and turning it in as their own work. However, close to half (46%) of students reported knowing someone who had copied materials from the Internet to submit as their own work for an assignment. Of those who admitted copying material, only 15% said they were caught plagiarizing. Given the publicity surrounding plagiarism detection tools available to teachers, it is worth pondering why so few report being caught.

When students were asked whether they felt it was okay to copy and paste a paper posted on the Internet for use as their own work in a class, 88% disagreed or strongly disagreed that it was okay to do so. The others were mostly neutral on the issue (10%), with only a few (2%) agreeing that it was acceptable to copy and paste material they found online and claim it as their own work. When asked how they would feel about the practice of copying and pasting papers posted online for use as their own if they knew they would not be caught, students were slightly less disagreeable. About three-quarters (76%) still disagreed with the practice, while those who were neutral rose to 18%, and those who agreed that it would be acceptable rose to 4%.

Students also seemed aware of limited paraphrasing as being a type of plagiarism. When asked whether changing a few words in each paragraph of an Internet document was all right in comparison to copying and pasting whole papers, the major of students disagreed (84%). About one in seven (14%) agreed that limited paraphrasing of online material was acceptable. Most students (84%) also felt that they were very careful to cite others' material, and most (96%) believed that claiming others' work as one's own was one of the worst academic offenses. Nearly one-third (31%) of students surveyed said they knew someone who had used a cell phone, laptop computer, or personal digital assistant to cheat on an exam by storing answers in the device, contacting a friend for answers, or other similar activities. Connecting to the Internet during class for personal (i.e., not related to the course) reasons is a somewhat common practice, with just over one-quarter (26%) of college students reporting having done this.

Conclusions and Implications

In some ways little has changed since our first look at college students' Internet use in 2002. Internet use is thoroughly woven into a college student's life. Today's student has for all intents and purposes grown up with early knowledge of, if not significant access to, the Internet. Computers have been commonplace in school and at home. By the time these students entered high school, nearly all had Internet access. Indeed, computers and the Internet are so common at college that Rebekah Nathan's recently published book *My Freshman Year* (2005) barely mentions them beyond noting that students often multitasked and some took courses online. Reading her fascinating, undercover anthropological account of passing as a college freshman, one gets the impression of an almost complete absence of computers and online activity. What her book reveals by omission is that this technological communication infrastructure is so much a part of the college landscape—so ubiquitous—as to be unnoticeable.

Whereas it was true in 2002 that college students took Internet access for granted, today they take almost everything *about* the Internet for granted. Today's college students are at the forefront of the use of social networking sites such as Facebook and MySpace. But there is little of the kind of "buzz" and hype about these technologies among the users that one finds in many blogs, newspapers, and magazines—they are simply part of daily life for many. Email is still the tool the majority of college students use most often. More of them are blogging now than before, and on a percentage basis there are more bloggers among college students than among the general population (Lenhart & Fox, 2006). But even though they are heavy users of Web 2.0 tools, most of them seem to consider those tools primarily as a part of college *life* and not as much a part of college *education*, using them mainly to communicate with new friends, old friends, and family. It is not clear that students see other purposes for these tools, and so one is left to wonder whether to believe the hype surrounding predictions about the use of such technologies for education, business, or politics in the future.

Will college students' attitudes toward Internet use mean that the innovation in Internet use and applications that have so regularly been spawned on campuses will dry up? That is not likely, if only because there are undoubtedly many individual students who do not fit the general pattern—students for whom the Internet is an obsession and for whom developing new tools (and hacks) is a passion. Nor does it mean that college students will not take up new applications when they arrive.

Quite the contrary; they remain eager early adopters—but they are more likely to use an application than they are to tout it or flout it.

Interestingly, from observation and interviews, it seems most college students (as opposed to educators) seem nonplussed about *Second Life*, an online virtual environment described on its website as "a 3-D virtual world entirely built and owned by its Residents. Since opening to the public in 2003, it has grown explosively and today is inhabited by a total of 9,703,110 Residents from around the globe"—residents who live, socialize, buy, sell, and trade (see http://secondlife.com/whatis for more details). They are unable to comprehend its attraction and do not show an interest in using it for distance learning. They find little point to *Second Life*, because there are no obvious rewards or "levels" as there are in video games, and the graphics seem far less impressive than they do in the games to which they have become accustomed. It is likely that as displays get larger, network connections become faster, and more media and classes move online into *Second Life*-like virtual environments that college students will for all intents and purposes be forced to spend time in those environments, but it would behoove educators (particularly ones for whom *Second Life* retains some "Wow!" factor) to consider that for students the environment may be unexciting, at best. In other words, although *Second Life* may have interesting uses for education, it is important to remember that the experience of it as a technology for college students appears to be simply boring.

Online Education

While today's college students are increasingly partaking of online courses as compared to those surveyed in 2002, they are not moving to online education in droves. Their choice to take an online course seems, more often than not, to be predicated on convenience both in regard to time and to place. If an online course can solve a scheduling problem (and one must keep in mind that a "scheduling problem" may mean simply avoiding having to go to a class on Fridays) or help a student avoid going to a class in a building far away from one's residence hall or apartment, the choice to take it is clear. Such decision making, coupled with a newfound interest on many campuses in accommodating more students without new building construction—freeing up classroom space with online and "hybrid" or "blended" courses—will likely continue to fuel growth in online education. Whether the majority of college students, however, are likely to make online education a significant part of their time in college is unknown, because there are many aspects of college life that are nonacademic and strongly tied to place.

As Nathan (2005) noted, "Most professors and administrators overestimate the role that academics plays in student culture, and as a result magnify the impact of teachers and classes on student life and decisions" (p. 140). Today's college students are, if nothing else, smart consumers. Whether one agrees or disagrees with their decisions, they rarely make uninformed choices, and usually carefully weigh the pros and cons of most everything related to their college life (of course, teachers, and adults generally, may not understand the metrics they use for those measurements). The extent to which they choose online courses will, for the majority of them, ultimately be driven by the quality and value of the courses on a number of different levels.

There is every reason to think that upon graduation college students will in general continue to be heavy Internet users. And as new demands such as jobs and families become a part of their lives they will likely incorporate Internet use into those areas as well. The same seamlessness with which the Internet coexists with their college life may elude them somewhat (particularly as they come to be responsible for their own connectivity at home, and move between jobs that may have better or worse access), but there is little question that the Internet is part of their communication, information, and entertainment "mix," and its absence would leave a notable gap not only in their social and leisure lives but also in their knowledge of everything from world affairs to movie showtimes.

Privacy and Social Circles

Concerning college students' understanding of the line between the personal and the public, our study shows that the majority of college students, nearly three-quarters, are at least somewhat concerned about the privacy of their personal data on the Internet (only 3% are not at all concerned); nonetheless, they continue to post personal information online. This is not a contradiction for them, but rather a matter of multiple definitions of the personal, of private and public. While they are concerned about the security of passwords, credit card numbers, and social security numbers, they are not very concerned about sharing what might seem like private behavior on social networking sites such as MySpace and Facebook. The reason for their lack of concern is partly a result of the degree to which these sites "feel" private; one "invites" friends to them, and the notion that they are easily viewed by anyone is often ignored, overlooked, or simply not understood. In some cases, one's home page and profile can be kept private, and the availability of the option may be enough to cause a user to believe it *is* private.

(Perhaps if the sites were to reverse the option, i.e., to require users to make sites public and by default make them private, then less personal information would be publicly shared.) However aware they may be of online predation, security concerns, and the like, many college students simply do not believe that they will face significant consequences from posting private information online.

Thanks at least in part to social networking sites, college students now have a broader social circle than ever before. As Facebook has made inroads in high schools and in the corporate sector, it is becoming possible for college students to maintain connections to high school friends, as well as connections with college friends once they graduate and move into the workforce. The rise in popularity of these sites is not a surprise when viewed through the lens of today's college students' lives. As Nathan (2005) pointed out in *My Freshman Year*, students' (offline) personal networks are very deliberately and consciously constructed in the context of what she calls an "over-optioned" system in which life is "an optional set of activities and a fluid set of people whose paths are ever-shifting" (p. 40). It is not likely that today's college students will have as many social options after they leave college, if only because they are unlikely to ever again find themselves in a situation that immediately and on a large scale puts them in close personal contact with so many new people. It may be that the social ties formed in college, both offline and online, will become increasingly important as the number of new social contacts diminishes. It would be particularly interesting to track today's college students and monitor their social circles over time, perhaps along the lines of Michael Apted's 7*Up* film series (which has followed a set of friends and resulted in a new film every 7 years that captures their lives and relationships), to view the ebb and flow of offline and online social networks.

Perhaps the most surprising finding of the Pew study is of the absence of particularly innovative uses of the Internet either in academic or social activities. That is not to say that college students are not doing interesting things online, or that there are no academic programs that utilize the Internet in useful and interesting ways. However, generally speaking, our study did not uncover evidence of any disruptive technology (Christensen, 1997). By and large Internet technologies are supplanting or replacing traditional methods of instruction and communication, but they would appear to be doing so in a relatively steady manner. While much has changed about the technology a college student encounters today compared with the technology one encountered 20 years ago, it is likely that the vast majority of other aspects of

college life have changed little. And, even in those technological areas in which change has been greatest, the change that has occurred has for the most part been in service of the existing interests (social, leisure, and academic) of college students, so that changes have largely been experienced in regard to quantity (the variety of music one encounters, the number of friends with whom one stays in touch, the amount of information to which one has access, the amount of communication one has with professors, etc.) and not very much in regard to quality.

The National Survey of Student Engagement (2006) listed numerous aspects of student success, including "persistence and graduation rates, student goal attainment, course retention, transfer rates and transfer success, success in subsequent coursework, degree/certificate completion, student satisfaction, [and] personal and professional development" (p. 33). Perhaps technology, with its advances and effective implementation (individually and institutionally), can contribute to maintaining or even increasing multiple facets of student success. It is critical that our deepening understanding of students' Internet use be framed by these understandings of success.

NOTES

1. All references in the text to the "2002 report" or "2002 survey" are to this report.

2. National Center for Education Statistics, College Student Population in the USA 2003–04, data accessible at http://nces.ed.gov/ipeds/. Data for the period 2004–05 were not available at the time of writing. However, a review of changes from year to year between 1994 and 2004 revealed very little difference from one year to the next, typically no more than 0.1% in any category of race.

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