

Roadmap

TOOLS FOR NAVIGATING COMPLEX DECISIONS

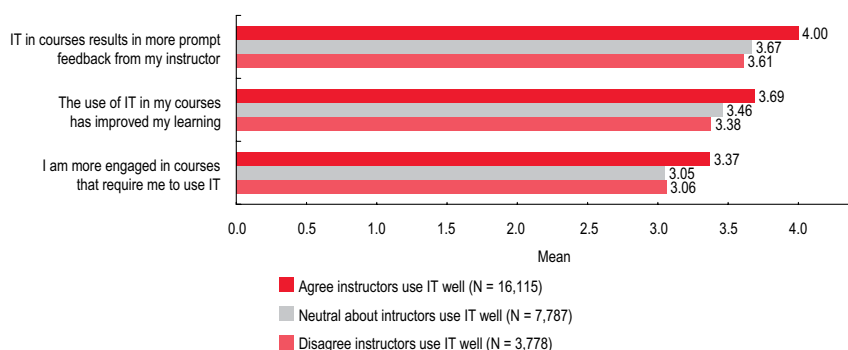
The ECAR Study of Undergraduate Students and Information Technology, 2007

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KEY FINDINGS

- ▶ Virtually all student respondents (98 percent) report owning a computer. Ownership of laptops increased more than 7 percentage points since the 2006 survey, to 74 percent.
- ▶ Sixty-one percent of respondents agree or strongly agree that IT in courses improves learning. But a majority (56 percent) also indicate that convenience is the primary benefit of IT in their courses.
- ▶ Far more students express a preference for moderate use of IT in their courses (59 percent) than extensive use (20 percent).
- ▶ Students report good IT skills overall. Only 26 percent say their institution needs to provide additional training in IT required for their courses.
- ▶ The great majority of all students (92 percent) have high-speed Internet access—either wired or wireless.
- ▶ Respondents report spending an average of 18 hours per week doing online activities for school, work, and recreation.

Student Perceptions About IT in Courses,* by “Instructors Use IT Well in Courses”



*Scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Higher education is undergoing a significant change in communicating, teaching, and learning—driven by the technology revolution. To effectively navigate this change, both faculty and administrators need up-to-date and insightful information about how college undergraduates use and experience technology. The annual EDUCAUSE Center for Applied Research (ECAR) study of undergraduate students and information technology (IT) was created to respond to this need. It provides information about student IT behaviors and preferences at our respondent institutions—information that can inform the practices of teaching faculty and is useful to institutions’ leaders and technologists as they implement campus technology environments.

In this, the fourth year that ECAR has surveyed undergraduate students, *The ECAR Study of Undergraduate Students and Information Technology, 2007* reports noticeable differences from previous years’ studies in students’ ownership of, use of, and skill with IT and in the

This ECAR Roadmap synthesizes the results of 27,846 freshman, senior, and community college student responses from a spring 2007 survey and interviews with students at 103 higher education institutions, as reported in The ECAR Study of Undergraduate Students and Information Technology, 2007 by Gail Salaway and Judith Borreson Caruso. To order the full study and learn about subscribing to ECAR, visit the ECAR Web site at <http://www.educause.edu/ecar/> or contact us at ecar@educause.edu.

COMPARING 2005–2007 RESULTS

Among institutions that participated in each of the 2005, 2006, and 2007 studies, ECAR found...

- ▀ Increased ownership of laptop computers (52.8 percent in 2005, 68.3 percent in 2006, 75.8 percent in 2007)
- ▀ Increased ownership of smartphones (1.2 percent in 2005, 7.8 percent in 2006, 10.1 percent in 2007)
- ▀ Decreased use of dial-up as the primary Internet connection method (12.1 percent in 2005, 8.9 percent in 2006, 7.8 percent in 2007)
- ▀ Increased use of wireless as the primary Internet connection method (12.4 percent in 2005, 19.2 percent in 2006, 24.0 percent in 2007)
- ▀ Increased use of social networking such as Facebook and MySpace (72.3 percent in 2006, 80.3 percent in 2007) (not included in 2005 study)
- ▀ Increased number of students who have used a course management system (CMS) (69.7 percent in 2005, 72.5 percent in 2006, 82.9 percent in 2007)

impact of IT on their academic experiences.¹ Through the use of both quantitative and qualitative data, the study summarizes these experiences and compares the 2007 results with the results from the 2005 and 2006 ECAR studies.² In 2007, 103 institutions from across the United States participated. While these results are statistically significant for the institutions involved, it is also likely that these results are indicative of student perspectives at many similar institutions.

Technology Ownership and Access

The 2007 study found that 98.4 percent of freshmen, senior, and community college respondents at the 103 participating higher education institutions own a computer. Nearly three-quarters (73.7 percent) own a laptop, 60.6 percent own a desktop, and 35.7 percent own both. Also, 64.0 percent of all freshmen own laptops that are less than one year old. Ownership of smartphones is rising, showing a 12.0 percent rate of ownership this year. Students also note high rates of connectivity to the Internet. Fully 91.5 percent report that they connect to the Internet primarily using wired or wireless broadband.

Students' Technology Use

Students report spending an average of 18 hours per week doing online activities for school, work, or recreation. Nearly all use e-mail (99.9 percent), write documents for coursework (98.6 percent), and access library resources on a university or college Web site (94.7 percent). Relatively few use software to create Web pages (29.1 percent) or audio/video files (32.6 percent). Engineering and business students report the greatest

use of IT overall, with engineering majors spending an average of 22 hours per week online. Instant messaging (IM) and online social networking (Facebook, MySpace, etc.) are used more heavily by younger students, with 58.9 percent of 18–19 year olds reporting daily use of IM and 69.3 percent indicating daily use of online social networking.

Students' Technology Skills

Students were asked to rate their technology skills for various applications as poor, fair, good, very good, or excellent. They are most confident about their skills with course management systems and presentation software (for example, PowerPoint), with an average rating close to "very good." They also report "good" skill with spreadsheets, online library resources, and computer maintenance. Seniors report stronger skills with spreadsheets and use of online library resources. Only 25.9 percent of students agree or strongly agree that their institution needs to give them more training on the IT that they are required to use in their courses. Fully 36.0 percent of students consider themselves early adopters of technology, and only 13.5 percent consider themselves late adopters.

Information Technology in Courses

Every year since 2004, students express a preference for moderate use of IT in their courses. In 2007, 59.3 percent again say they prefer moderate IT in courses. However, there is a cadre of students who prefer extensive or exclusive IT in their courses (23.2 percent), as well as some who prefer limited or no IT in courses (17.5 percent).

METHODOLOGY

- ▶ A literature review to identify and clarify the study's major elements, including a review of the 2005 and 2006 ECAR studies and other higher education IT student surveys.
- ▶ A quantitative survey with a sample of 258,902 freshmen, senior, and community college students at 103 higher education institutions; 27,846 students responded. Carnegie breakdown of responses was 49.2 percent doctoral, 37.8 percent master's, 5.5 percent bachelor's, 6.6 percent associate's, and 0.9 percent other. Respondents were 62.1 percent female, 89.5 percent attend school full-time, and 57.2 percent live off campus.
- ▶ Interviews of 50 students in focus-group settings at four institutions.
- ▶ Analysis of the approximately 4,700 student comments in response to the survey open-ended question.

Students report that e-mail (95.9 percent) was the most used technology in their courses during the quarter/semester of the survey (March/April 2007). Most used a CMS (76.6 percent) and presentation software (69.3 percent). Podcasts are used by only 5.0 percent of the respondents but are well-received by students who have used them, based upon students' comments.

Nearly three-fourths (72.0 percent) of the students report that they like to learn by running Internet searches, and 53.3 percent like to learn through programs they can control, such as video games and simulations. Students identifying themselves as innovators or early adopters of technology like these modes of learning even more.

A large majority of respondents (82.0 percent) have used course management systems at some point in their college career. This is a significant increase from the 2006 study findings. For those who have used a CMS, 76.5 percent report a positive or very positive experience with the system. The features they find most useful are keeping track of grades on assignments and tests—with a mean between very useful and extremely useful—and access to sample exams and quizzes—with a mean of very useful. These are features directly related to grade performance.

When asked to identify the most valuable benefit of using technology in courses, most students chose "convenience" (55.5 percent). Considerably fewer students chose "helped me manage my course activities" (19.5 percent), "helped me communicate with my classmates and instructors" (10.6 percent), or "improved my learning" (10.3 percent). Only 2.8 percent of the student respondents say there is no benefit whatsoever to IT in courses. Females are more likely to choose communication as the primary IT benefit, and males are more likely to choose improved learning. Respondents from associate's institutions and older respondents are also more likely to choose improved learning as the most valuable benefit of using IT in their courses.

Overall, more than half of the students (58.2 percent) say that their instructors use IT well in their courses. In interviews and in the open-ended comments, however, students state that instructors' skills with IT vary widely, and many recommend improving instructors' skills with IT.

IT's Impact on the Academic Experience

When asked about IT's contribution to their academic experience, student respondents are generally positive about the seven academic outcomes queried. Nearly 61 percent agree or strongly agree that IT has improved their learning. Most students also agree that technology "helps me take greater control of course activities" (59.5 percent) and "helps me better communicate and collaborate" (58.8 percent). More than 73 percent of the student respondents agree that IT facilitates "prompt feedback from instructors," and 70.5 percent agree that IT "helps me do better research." Engineering and business students are more positive overall about IT's impact on their academic experience than students in other majors. Respondents who prefer more IT in courses or who think their instructors use IT well also agree more strongly that IT has a positive impact on their courses. However, students also note that while IT is useful, face-to-face instruction is still very important.

Endnotes

1. Gail Salaway and Judith Borreson Caruso, *The ECAR Study of Undergraduate Students and Information Technology, 2007* (Boulder, CO: EDUCAUSE Center for Applied Research, 2007).
2. Robert B. Kvavik and Judith B. Caruso, *ECAR Study of Students and Information Technology, 2005: Convenience, Connection, Control and Learning* (Boulder, CO: EDUCAUSE Center for Applied Research, 2005); Gail Salaway, Richard N. Katz, and Judith B. Caruso, *The ECAR Study of Undergraduate Students and Information Technology, 2006* (Boulder, CO: EDUCAUSE Center for Applied Research, 2006).

OBSERVATIONS—WHAT DOES THIS MEAN?

Based on its findings in *The ECAR Study of Undergraduate Students and Information Technology, 2007*, ECAR thinks these observations merit further consideration:

1. Instructor skill with IT greatly impacts student perception of the value of IT in their courses.

Hundreds of the student comments, both in the focus groups and in open-ended comments, address instructor use of technology in courses. Students report a wide range of experience and view their instructors as fully accountable for whether IT has a positive or negative impact on their learning and engagement in courses. Students say that, when used well by the instructor, IT can be an amazing learning tool. They also note that, when used poorly, IT detracts from the course and makes it difficult to focus on the course content. Students suggest that instructors need stronger IT skill sets in general, as well as more training in how to effectively integrate technology and pedagogy.

2. The curriculum matters when it comes to student use and skill with technology.

Just as in 2006, the 2007 ECAR study results reaffirm that student assessments of their IT skills tend to be associated with their majors. Engineering and business students report more use and skill with presentation and spreadsheet software. Fine arts students report more skill with graphics software. Social science and humanities majors report more skill using library Web sites. Seniors, perhaps because they have taken more courses, report stronger skills than freshmen in spreadsheets and use of library Web sites. These data imply that where and when IT is introduced into coursework is important.

3. IT in courses is about convenience.

For the fourth straight year, students selected convenience as the primary benefit of IT in their courses. IT is seen as a tool for making higher education more accessible, enabling them to access course material whenever they want, wherever they are. Students also are pleased to be able to communicate with faculty and students whenever they need to do so and receive a prompt response. Their primary frustrations arise when needed online resources are slow, unavailable, or not user-friendly.

4. Overall, students prefer a moderate amount of technology in courses. Face-to-face interaction between instructors and students is valued.

Most student respondents find face-to-face interaction with faculty and other students extremely important. While students like the many benefits of IT—especially for communication and accessing course-related materials—they say they prefer courses that balance IT and the classroom experience. In the open-ended comments, students pointed to the classroom experience as better for learning interaction skills, critical thinking, and decision making. Yet for some students, IT-intensive courses are desired as a way for students to balance their work, family, and school lives.

5. Students are increasingly mobile.

More student respondents than ever own laptops (73.7 percent), and some are switching their simple cell phones for converged mobile smartphones (12.0 percent). Of students who claim to be early adopters of technology, 18 percent already own smartphones. While this is evolutionary rather than revolutionary change, the trend will likely continue and accelerate. This finding is important as institutions consider their strategies for making wireless widely available and for providing IT services on handheld mobile devices.

6. Students expect IT to be available.

Just as earlier generations came to expect electrical outlets in every room, the Net Gen student expects e-mail, Internet access, CMS, and other IT services to be available everywhere, all the time. They express frustration when core technologies are not available or accessible when they need them. The reliability and availability directly impacts their perceptions about the value of IT in instruction. Higher education institutions will need to continue to improve their services to meet these expectations.