Tufts Students Respond

KEY FINDINGS FROM

The ECAR Study of Undergraduate Students and Information Technology, 2011
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**Appendix [Data Figures]**
Highlights

- Full-sized laptop computers prevail at Tufts (98%). Almost 60% own a personal handheld device (cellular phone-sized, Internet-capable).
- Students use study-related technologies frequently and are generally drawn to traditional technologies. A fair number of students do not contribute content to blogs or wikis. Very few use Twitter or the like.
- A majority of the students have a positive view of IT use in their courses and prefer a moderate level of IT integration.
- A Learning Management System (LMS) was used heavily with over half of the students reporting their positive experiences with it. Students value the convenience that an LMS provides in relation to their learning.
- About a third of the students use word processors and spreadsheets that are both cloud-based and native applications.
- Half of the students do not believe they are provided with adequate training for the IT the instructors use in their courses.

Background

About the 2011 Survey

EDUCAUSE Center for Applied Research (ECAR) conducted two versions of its annual survey of undergraduates and information technology in 2011.

First, in February 2011, the ECAR Study of Undergraduate Students and Information Technology was administered to self-selected four-year institutions and community colleges across the United States with the same procedures as those of the previous surveys. A total of 29,196 seniors and freshmen completed the survey. All Tufts University seniors and freshmen were invited to participate in this survey voluntarily in February 2011 via the Office of Student Affairs in coordination with UIT Academic Technology and with support from the Offices of the Dean of Student Services, the Dean of Undergraduate Education, and Associate Provost for Institutional Research. As a result, a total of 572 Tufts seniors and freshmen completed the survey, and Tufts received from the ECAR the Tufts-only survey results, as well as comparable data sets of other four-year institutions and the total responses.

Second, in June 2011, ECAR launched another version of the survey with changes both in the instrument and methodology. The changes were intended to capture a better representation of undergraduate students nationwide and the changing nature of
information technology needs and services in higher education. This second survey, the ECAR National Study of Undergraduate Students and Information Technology, recruited the study participants nationally through consumer panels, screened their qualifications to create a desired sample, and then privately invited the students to take the survey online. As a result, a smaller but hypothetically more accurate sample was formed—total of 3,000 college students from 1,179 colleges and universities. ECAR published only the June 2011 survey data publicly as a national study in October 2011 on their website at [http://www.educause.edu/2011StudentStudy](http://www.educause.edu/2011StudentStudy). To learn more about the two versions of the 2011 study and compare the survey instruments, visit the ECAR 2011 Student Survey Crosswalk at [http://www.educause.edu/Resources/ECAR2011StudentSurveyCrosswalk/238104](http://www.educause.edu/Resources/ECAR2011StudentSurveyCrosswalk/238104).

This *Tufts Students Respond 2011* report summarizes the results of only the February 2011 survey that Tufts seniors and freshmen completed. Any further statistical analysis was not conducted to gain accurate insight into how Tufts appears to compare with its peers at other four-year institutions from the February 2011 study due to limitations with the data formats provided by ECAR. This report also does not include a comparative analysis of the February Tufts data in relation to the June national survey results because of their different sampling methods and instruments. Note that it is beyond the scope of this report to address potential selection bias that may result from voluntary participation.

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1 Total undergraduate enrollments of the academic year, Fall 2010-Spring 2011, at Tufts are found on The 2010-2011 Fact Book published by the Office of Institutional Research & Evaluation (p.89) at [http://institutionalresearch.tufts.edu/fact-book](http://institutionalresearch.tufts.edu/fact-book). The percentage calculated above excludes the students enrolled in the Study Abroad Program, Special Programs and who are cross-registered due to lack of details on any possible overlap or breakdown by class standing.

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## About the 2011 Tufts participants

A total of 572 Tufts students participated in the survey in February 2011 -- 326 seniors and 245 freshmen. This sample represents approximately 20% of the total seniors and freshmen at Tufts. The average age of these respondents is 21. The study participants represent the following:

- 23% of the total Tufts seniors, 19% of the total freshmen (approximately)
- 60% female, 40% male
- 85% have cumulative grade point average (GPA) of B+ or above (60% have an A or A-)
- 98% full-time students
- 65% on campus 35% off campus
- Top 4 subject areas represented: undecided (43%), life/biological sciences (19%), engineering (19%), and other (19%)
- 95% taking none of their courses offered entirely online.
Technology Access or Ownership

[Appendix Figures 1 & 2]

Among the five different types of networking-capable personal devices, a personal full-sized laptop computer was the top-ranked device that most of the Tufts seniors and freshmen own (98%). 59% own a personal handheld device, in other words, an Internet-capable phone (plain cellular phones and mp3 players excluded). It appears that about half of the students buy a new laptop in their first year and keep it until they graduate since 63% of the freshmen indicate they own a laptop less than one year old; whereas almost half (48%) of the seniors have a laptop that is four years old. Not many own a lightweight netbook (monitor less than 10” or less, iPad included) or dedicated e-book reader such as a Kindle (over 90% don’t own these devices). The definition of the device types could be improved to accurately capture the devices that may fall under several categories such as iPad. There is no difference of technology ownership between the seniors and freshmen.

General Technology Use

Technology use for school, work or recreation

[Appendix Figures 3 & 4]

The Tufts seniors and freshmen reported that they spend an average of 26 hours per week on actively doing Internet activities for school, work or recreation.

The students were asked how often they use specific technologies for school, work, or recreation in general. Out of 15 different types of technologies, the students reported that they use text message daily (85%), and download or stream web-based music or videos several times per week or daily (67%). Although not all technologies require the same frequency of use—some require daily usage by nature; some could be used with specific goals but less frequently—it is fair to assume that the Tufts seniors and freshmen use conventional or study-related technologies more frequently. For example, more than 60% of the students use spreadsheets (Excel, Numbers, Google Spreadsheets, etc.) (66%), college/university library website (62%), and instant messaging (61%) at least weekly or more frequently.

On the contrary, almost all of the students (96%) have never used online virtual worlds such as Second Life. Also, very few of them (3%) play online multi-user computer games. Interestingly, a

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2 Definition of networking-capable personal devices from the survey instrument (p.1):

- A desktop computer is one that was not designed to be portable; the keyboard and monitor are usually separate units.
- A full-sized laptop computer is one that is designed to be portable; it usually weighs more than two pounds; the keyboard and monitor are usually attached to each other.
- A lightweight netbook or tablet computer is highly portable; it usually weighs less than two pounds; its monitor is small (usually 10” or less) and the keyboard may be small and built in or the keys may be displayed in video on a touch screen. iPad is included here.
- A dedicated e-book reader is a portable device whose sole function is as a platform for reading electronic books and certain other electronic publications. Examples include the Kindle, NOOK, and the like; iPad and similar tablet devices serve many other functions and so are not included here.
- A handheld device is usually about the size of a cellular telephone and often includes one; it has a screen that can show e-mail messages, web pages, video, etc.; and its keyboard is a few inches across, at most. We are not interested in devices that are plain cellular phones or are music/video players only, such as certain iPods.
considerable number of the students reported no experience using content-creation or web 2.0 technologies. 75% reported they have never used social bookmarking/tagging sites, Twitter or the like (61%), nor audio/video-creation software (58%).

When the students were asked how often they “contribute” content online, well over 60% reported they have never done so to wikis (Wikipedia, course wiki, etc.) (68%), blogs (64%), and video-sharing websites (YouTube, etc.) (63%). [Figure 4]

Self-evaluation of technology skills [Appendix Figure 5]

The students believe themselves to be well-versed in information search. 77% considered themselves to be very skilled or even expert in using the Internet to effectively and efficiently search for information, and 65% considered themselves skillful in evaluating the reliability and credibility of online sources of information.

Meanwhile, graphics software such as Photoshop or Flash was the top area in which they feel they are not at all or not very skilled (64%). It is also important to note that 42% believe they are not at all or not very skilled at maintaining their computer (software updates, security, etc.).

Adoption of new technologies [Appendix Figure 6]

The Tufts seniors and freshmen in general seem to be comfortable with new technologies as 84% state they use new technologies either when or before most people they know do. Whereas half reported that they use new technologies when most people they know do, almost a third of the Tufts seniors and freshmen (34%) consider themselves as early adopters—they either like new technologies and use them before most people they know or they love new technologies and are among the first to experiment with and use them.

Use of a personal handheld device [Appendix Figure 7]

Among those who own a personal handheld device (59%), a majority of the activities performed on their device are, in rank, 1) text messaging, 2) e-mailing, 3) checking information (news, weather, sports, facts, etc.), 4) using maps (find places, get directions or plan routes), and 5) using social networking sites (more than 80%) in addition to making phone calls.

Interestingly, many students neither use Twitter (only 29%) nor do they read or contribute to blogs using their handheld device (only 23% do).

Use of social networking sites [Appendix Figures 8-1 & 8-2]

80% of the Tufts seniors and freshmen use social networking websites on a daily basis. Over 70% reported typical uses of these sites such as staying in touch with friends, sharing photos, music, videos, or other work, finding out more about people, and organizing events. In addition, the students indicated a couple of school-related uses of those sites. 65% communicate with their classmates about course-related topics, and follow and interact with their college's or university's social/extracurricular activities (athletics, clubs, arts, etc.).

They hardly use social networking sites to communicate with instructors or administrative offices about course-related topics. Many students seem to be aware of privacy settings on their social
networking sites and how to control them. 66% put a lot of restrictions on access to their profiles on social networking sites and 32% place some restrictions.

**Technology Use in Courses**

**Use of personal technologies in class**
[Appendix Figures 9-1, 9-2, 9-3]

Students were divided on whether they agree on the statement, “While I'm in class, I regularly use my laptop, netbook, tablet, or handheld device for course activities (taking notes, texting, Internet access, etc.).” However, over half of the students disagree or strongly disagree that they use the technologies for non-course activities. Also, more than half agree or strongly agree that instructors should have the authority to forbid the use of laptops, netbooks, tablets, or handheld devices during class time. There is no difference to report about this topic by class standing or GPA.

**Preference towards the level of IT integration in courses**
[Appendix Figure 10]

Over 80% of the Tufts seniors and freshmen indicated they prefer some integration of IT in their courses, and over half (62%) indicated they prefer taking courses that use a moderate level of information technology. There was no distinct gap in the responses of the freshmen and seniors regarding their preference towards the level of IT in courses.

**Students view of their instructors’ use of IT in class**
[Appendix Figures 11-1, 11-2, 11-3]

Students reported divided perspectives on how many of their instructors use Information Technology (IT) effectively in their courses. Almost equally divided, a third of the students believe very few instructors use IT effectively in their class, another third believe about half of their instructors do, and the remaining third believe most or all or almost all instructors use IT effectively in their courses.

Again, the responses were divided in their agreement on how many of their instructors have adequate IT skills for carrying out course instruction. However, half the responses indicate that almost none or only some of their instructors provide them with adequate training for the IT that their instructors use in their courses.

**Learning Management System (LMS)**
[Appendix Figure 12]

93% of the Tufts seniors and freshmen reported their experience with a course that used a course or learning management system, and 88% said their course(s) in February 2011 was/were using the learning management system. More than half of the students (62%) reported positive or very positive experience using their learning management system while 30% remained neutral. Only 8% were negative (7%) or very negative (1%) about their experience with the learning management system.
Perception towards the impact of IT in learning  
[Appendix Figures 13-1 through 13-7]  

Students reported a wide range of opinions about how IT impacts their learning. Almost half of the Tufts seniors and freshmen remained neutral on whether or not they get more actively involved in courses that use IT. However, a majority of the students (75%) believe that IT makes doing their course activities more convenient. Almost half of the students (49%) believed that the use of IT in their courses improves their learning. 65% reported that they were adequately prepared to use IT as needed in their courses when they entered college. For a majority of the students (71%), whether or not course materials are made available online does not impact their decision on skipping classes. There seems to be no consensus on the following two statements: “By the time I graduate, the IT I have used in my courses will have adequately prepared me for the workplace.” and “My institution’s IT services are always available when I need them for my coursework.”

Course-related technology use  
[Appendix Figure 15]  

Generally, although not all technologies are or should be used for course(s) extensively, 77% reported their use of the university library website for their course work. Among the 26 technologies provided in the question, 30% or more of the Tufts seniors and freshmen selected the following four technologies they use for their course(s): 1) college-related review/opinion sites (RateMyProfessors, College Prowler, Unigo, College Confidential, etc.) (37%), 2) web-based citation/bibliography tools (CiteULike, OttoBib, etc.) (35%), 3) wikis (Wikipedia, course wiki, etc.) (33%), and 4) web-based calendars (Google Calendar, etc.) (32%).

Again, a very low percentage was reported on the technologies that involve active content-creation, content-sharing or interaction. The least used technologies (less than 5%) are: online virtual worlds (Second Life, Forterra, etc.) (1%), 2) e-portfolios (1%), 3) social bookmarking/tagging (Delicious, Digg, Newsvine, Twine, etc.) (2%), 4) photo-sharing websites (Flickr, Snapfish, Picasa, etc.) (4%), Twitter or a similar application (5%), and 6) audio-creation software (Audacity, GarageBand, etc.) (5%).

It is important to pay attention to the Tufts students’ use of the following technologies for IT services or instruction planning: e-books or e-textbooks (20%), clickers or student response system (18%), course-related podcasts or videos (18%). Also, there is a fair number of users of discipline-specific technologies such as Mathematica, AutoCAD, STELLA (22%) and programming languages (C++, Java, etc.) (16%).

Use of the Office applications  
[Appendix Figure 14]  

Tufts seniors and freshmen used all three types of the Office applications heavily in Spring 2011, including word processors (Word, Pages, Google Documents, etc.), spreadsheets (Excel, Numbers, Google Spreadsheets, etc.) and presentation software (PowerPoint, Keynote, Google Presentations, etc.). Although about half the responses indicate the use of these applications on their local computer without Internet access, it is important to note that almost a third of the respondents use word processors (33%) and spreadsheet (27%) with both online and offline access. 16% of them also use presentation software that is both network- and computer-based.
Discussion

In general, the key highlights of the Tufts February 2011 survey results appear to be consistent with the overall results observed in the previous Tufts Students Respond reports from 2007 and 2008. More specifically, the following themes have been observed over time as trends:

- High percentage of laptop ownership
- High percentage of an experience with and use of Learning Management System (LMS)
- Frequent access to the library website for course-related activities
- “Convenience” indicated as the most valuable benefit of using IT in courses
- Need for more student training on technologies specifically required for their course
- Only a fair number of students actively using the Internet for content creation

The 2011 national ECAR study describes undergraduate students’ experiences with information technology in greater detail. To learn more about the national trends, go to http://www.educause.edu/2011StudentStudy.
Appendix

How old is your ...

Figure 1.
How old is your ...

Figure 2.

b. Personal full-sized laptop computer
How often do you do or use the following for school, work, or recreation?

Figure 3.
How often do you contribute content to the following for school, work, or recreation?

**Figure 4.**
What is your skill level with the following?

Figure 5.
Which of the following best describes you?

- I am skeptical of new technologies and use them only when I have to: 3%
- I am usually one of the last people I know to use new technologies: 12%
- I usually use new technologies when most people I know do: 50%
- I like new technologies and use them before most people I know: 25%
- I love new technologies and am among the first to experiment with and use them: 9%

Figure 6.
Which of these activities do you do from your handheld device?

Figure 7.
How do you use social networking websites?

Figure 8-1.
Do you limit or restrict who has access to your profiles on social networking sites?

Figure 8-2.
What is your opinion about the following statements?

Figure 9-1.

a. While I'm in class, I regularly use my laptop, netbook, tablet, or handheld device for course activities (taking notes, texting, Internet access, etc.).

- **Strongly disagree**: 24%
- **Disagree**: 23%
- **Neutral**: 10%
- **Agree**: 22%
- **Strongly agree**: 21%
What is your opinion about the following statements?

Figure 9-2.

b. While I'm in class, I regularly use my laptop, netbook, tablet, or handheld device for non-course activities (texting, Internet access, playing games, etc.).

- Strongly disagree: 31%
- Disagree: 26%
- Neutral: 17%
- Agree: 20%
- Strongly agree: 6%
What is your opinion about the following statements?

![Bar chart](image9-3.png)

- 14% Strongly disagree
- 15% Disagree
- 15% Neutral
- 35% Agree
- 20% Strongly agree
- 1% Don't know

- c. Instructors should have the authority to forbid the use of laptops, netbooks, tablets, or handheld devices during class time.

*Figure 9-3.*
Which best describes your preference?

Figure 10.
How many of your instructors:

Figure 11-1.
How many of your instructors:

![Bar chart showing responses to a question about instructors' IT skills.](image)

**Figure 11-2.**
How many of your instructors:

Figure 11-3.
Overall experience using course or learning management systems

Figure 12.
What is your opinion about the following statements?

Figure 13-1.
What is your opinion about the following statements?

Figure 13-2.
What is your opinion about the following statements?

![Bar chart showing responses to statement: The use of IT in my courses improves my learning.]

*Figure 13-3.*
What is your opinion about the following statements?

Figure 13-4.

Figure 13-4.
What is your opinion about the following statements?

Figure 13-5.
What is your opinion about the following statements?

- By the time I graduate, the IT I have used in my courses will have adequately prepared me for the workplace.

Figure 13-6.
What is your opinion about the following statements?

Figure 13-7.
For your courses this quarter/semester, which type of applications are you using?

**Figure 14.**
Technology use for course(s)

a. Instant messaging - 13%
b. Video-sharing websites (YouTube, etc.) - 24%
c. Photo-sharing websites (Flickr, Snapfish, Picasa, etc.) - 4%
d. College/university library website - 77%
e. Graphics software (Photoshop, Flash, etc.) - 9%
f. Audio-creation software (Audacity, GarageBand, etc.) - 5%
g. Video-creation software (MovieMaker, iMovie, etc.) - 7%
h. Discipline-specific technologies (Mathematica, AutoCAD, STELLA, etc.) - 22%
i. Programming languages (C++, Java, etc.) - 16%
j. Social networking websites (Facebook, MySpace, Bebo, LinkedIn, etc.) - 23%
k. Twitter or a similar application - 5%
l. Wikis (Wikipedia, course wiki, etc.) - 33%
m. Blogs - 16%
n. Simulations or educational games - 8%
o. Online virtual worlds (Second Life, Forterra, etc.) - 1%
p. Course lecture podcasts or videos - 18%
q. Social bookmarking/tagging (Delicious, Digg, Newsvine, Twine, etc.) - 12%
r. Web-based citation/bibliography tools (CiteULike, OttoBib, etc.) - 35%
s. Web-based to-do lists/task-managers (Remember the Milk, Ta-da, etc.) - 6%
t. Web-based calendars (Google Calendar, etc.) - 32%
u. College-related review/opinion sites (RateMyProfessors, College Prowler, Unigo, College Confidential, etc.) - 37%
v. College study support (Cramster, Turnitin, Essay Checker, ShareNotes, etc.) - 16%
w. Textbook publisher resource websites (Pearson, McGraw-Hill, etc.) - 24%
x. E-portfolios - 1%
y. E-books or e-textbooks - 20%
z. Clickers or student response systems - 18%

Figure 15.