

UNIVERSITY OF MINNESOTA

Multi-College Student Survey: Experiences with Instructional Technology REPORT

Sponsored by:

College of Education and Human Development (CEHD)
College of Human Ecology (CHE)
College of Liberal Arts (CLA)
College of Veterinary Medicine (CVM)
Digital Media Center (DMC), Office of Information Technology (OIT)

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BACKGROUND

In the spring of 2001, representatives of CEHD, CHE, CLA, and CVM, along with staff members from the DMC, set out to evaluate the ways in which students in these four colleges experience instructional technology.

Our intention was to construct an evaluation that not only would gather particular information about the colleges involved in the project, but also would be general enough to be of use to other departments and colleges at the University of Minnesota that might wish to conduct similar assessments.

In creating this survey, we drew heavily on a collaborative evaluation project conducted in the spring through the fall of 2000 by staff and faculty members from CHE and staff members from the DMC. During both the earlier and current projects, we drew on the following sources to design the survey: University of Michigan's Fall 2000 Student Survey; Chickering and Ehrmann's "Implementing the Seven Principles: Technology as Lever" (<http://www.tltgroup.org/programs/seven.html>); and *How People Learn: Brain, Mind, Experience, and School* (John D. Bransford et.al., eds.).

Purpose

Our intention in conducting this evaluation was to assist administrators, faculty members, and instructional technology staff members as they decide how to:

- improve instructional technology student services,
- effectively distribute student technology fees, and
- longitudinally track student use of and attitudes toward instructional technology.

We hope to accomplish these goals by providing information both about the difficulties students have encountered in their attempts to use instructional technology and about their successes in this area.

Objectives

Very generally, our objective was to evaluate how instructional technology is affecting students' learning environments. More specifically, the survey attempted to assess:

- student attitudes toward instructional technology;
- student satisfaction with facilities and infrastructure (e.g., student computer labs and technology-enhanced classrooms);
- impediments to student use of instructional technology;
- students' level of experience with various digital technologies; and
- student priorities for the disposition of technology fees.

Methodology

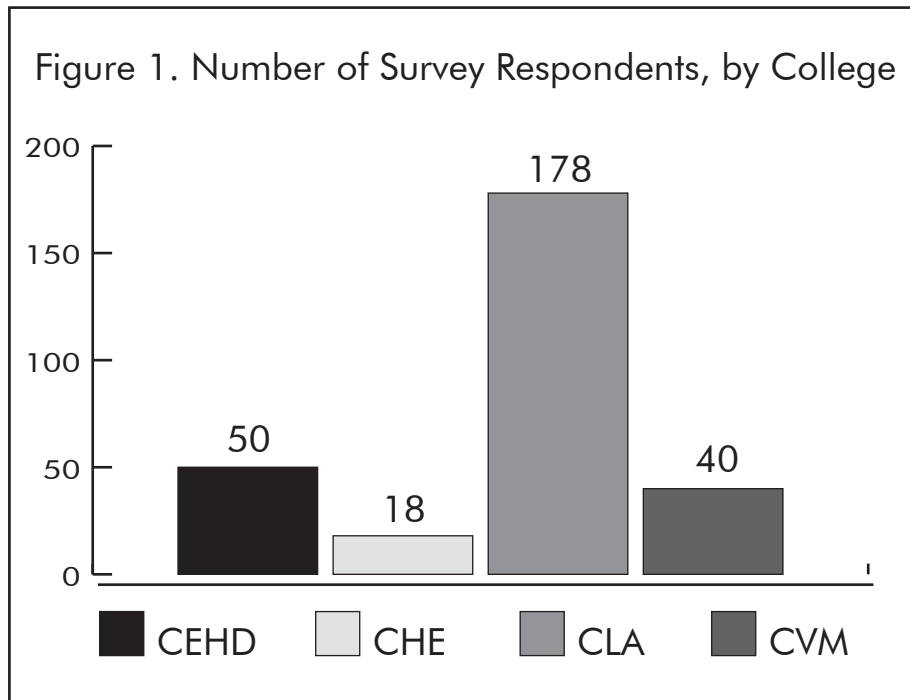
The survey contained 15 closed-ended questions and 1 open-ended question. Representatives from each college and unit requested feedback on the design of the survey questions from faculty members, collegiate associate deans, and unit heads and incorporated this feedback into the survey. The survey was Web-delivered,¹ password-protected, and released to a random sample of 1,100 students from the 4 colleges involved in the project. We worked with staff members² from Institutional Research and Reporting to obtain the random sample of students.

Students received a postcard³ that notified them that they would be asked to fill out a survey. They also received an e-mail message from the deans of their colleges on April 16, 2001, which asked that they fill out the survey by May 4, 2001. Finally, an e-mail message was sent on April 25, 2001, to remind them to complete the survey.

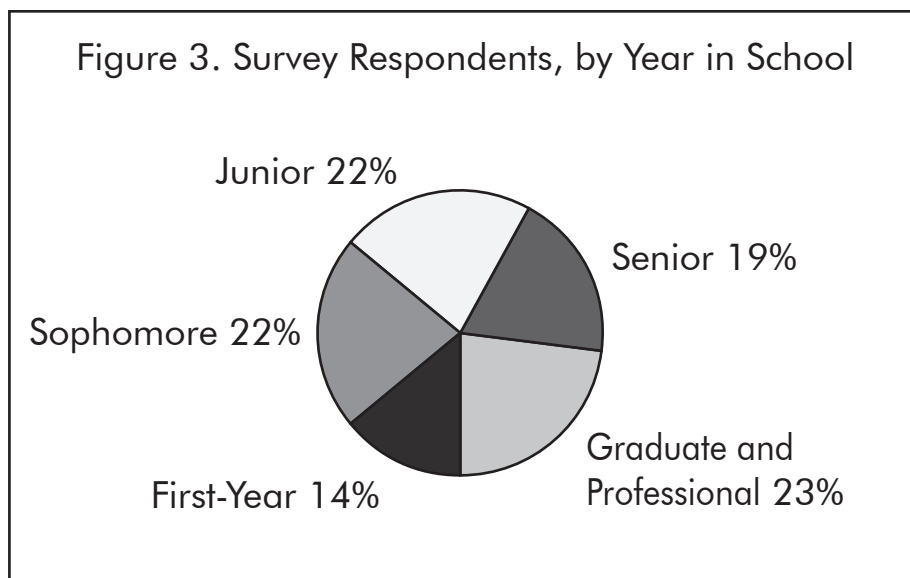
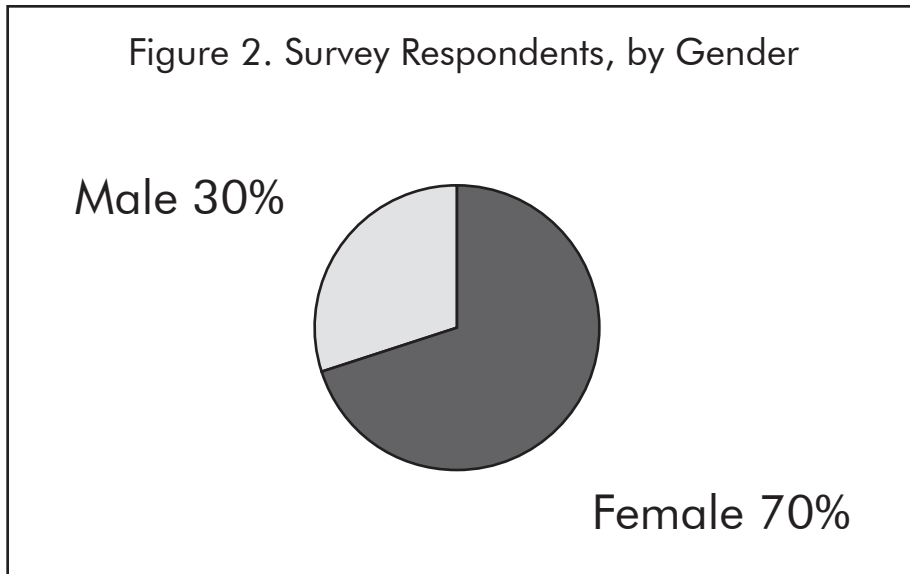
DMC staff members worked with the University of Minnesota's Institutional Review Board to have approved our processes for obtaining students' consent to administer the survey and for maintaining the confidentiality of the survey data.

Breakdown of Survey Respondents

We obtained 290 usable records (56 other students logged in to the survey but left it blank), for a 26.4% response rate. Figures 1, 2, and 3 display the distribution of survey respondents by college,⁴ gender, and year in school.



1. Thank you to CEHD and Stephen Collins, CEHD/ADCS, for creating and helping us use this survey tool.
2. Thank you to John Kellogg and Ron Huesman, Institutional Research and Reporting, for selecting the random sample.
3. Thank you to Chris Scruton, DMC, for help with postcard and e-mail publications.
4. College affiliation was unclear for four survey respondents.



HIGHLIGHTS

In this section we provide details of students' responses to selected questions,⁵ including those about the following issues:

- student Internet connections
- the usefulness of various technologies
- student attitudes toward instructional technology
- impediments to student use of instructional technology

5. For complete response data, send an e-mail message to J.D. Walker, DMC consultant, at walker@boombox.micro.umn.edu. The numbers in the charts may not sum to 100% due to rounding.

- student priorities for spending technology fees
- the frequency with which students have encountered different types of technology-enhanced courses

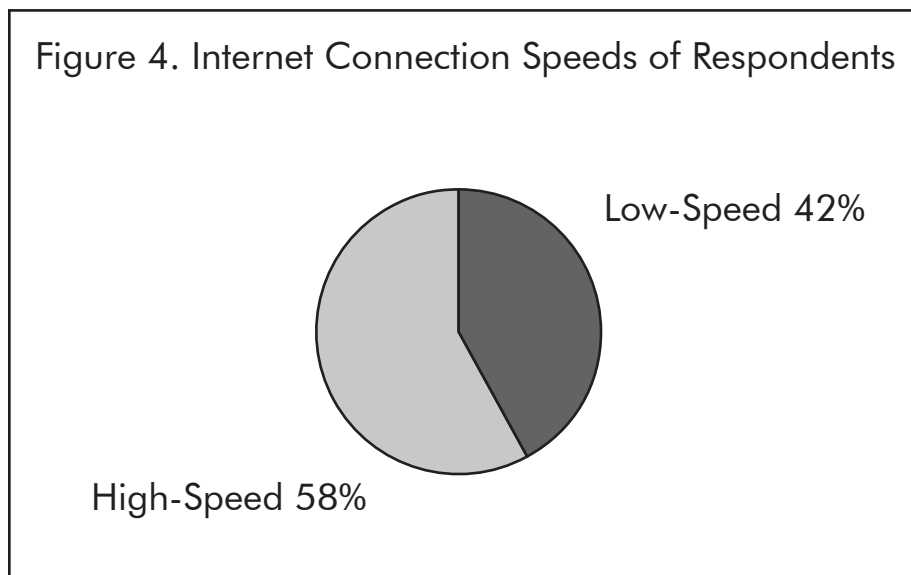
Gray boxes below are quotations of student responses to our open-ended question, “What advice would you give to a student using Web-enhanced courses for the first time?”

We conclude this section by summarizing our results regarding student use of technology, attitudes toward instructional technology, and satisfaction with technology services.

Access

Question 2: "What type of Internet connection is used at your primary (or most commonly used) location?"

Well over half of all students responded that they had high-speed access to online course materials (defined here as either a digital subscriber line (DSL), cable modem, or ethernet connection; low-speed access was defined as a dialup or WebTV connection). First-year students were the most likely to have high-speed access; graduate/professional students were the least likely.



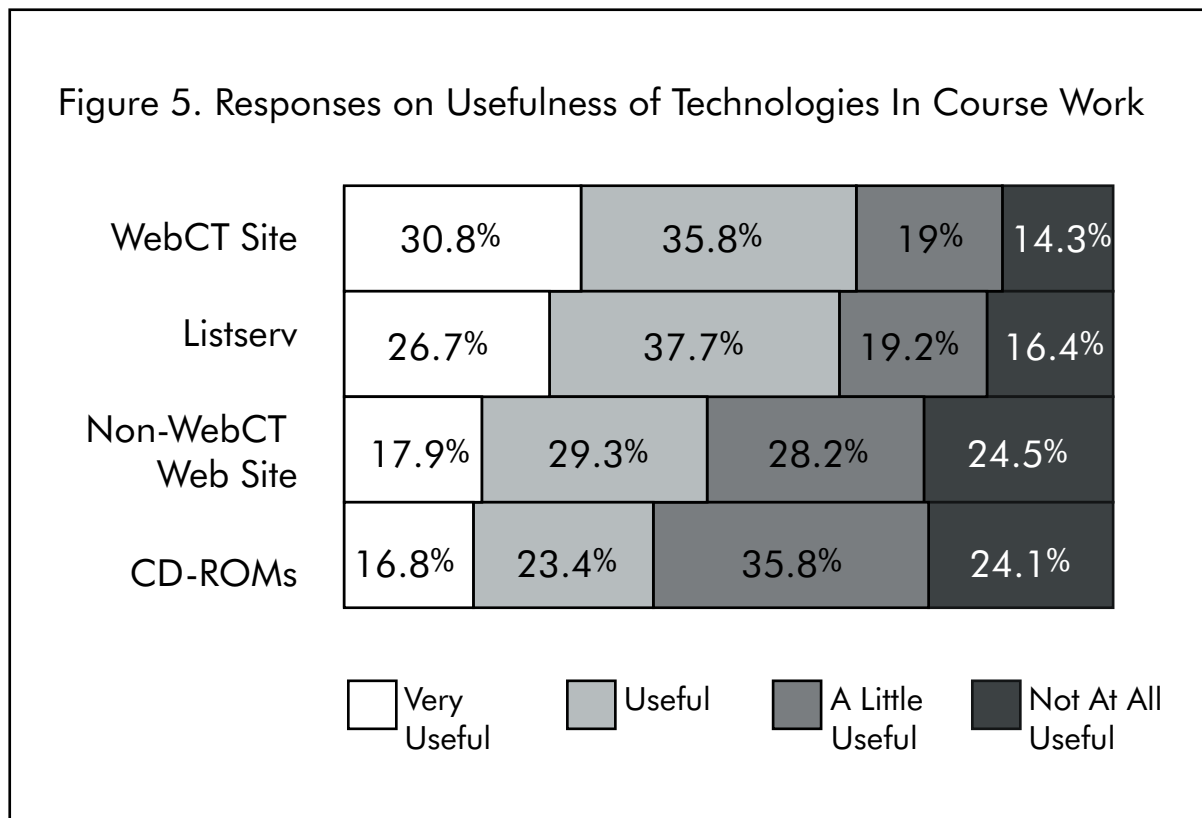
“[A] lot of the materials will take way too long to load on a dialup connection.”

—A student’s comment to others taking their first Web-enhanced courses

Usefulness of Various Technologies

Question 10: "How useful have each of the following technologies been to you in your course work?" (Answers were chosen from a four-item Likert scale and ranged from very useful to not at all useful.)

When students were asked how useful they found various educational technologies in their course work, WebCT sites got the highest score, with 66.6% of students rating them useful or very useful. Non-WebCT Web sites were rated the same way by 47.2%.



"Use WebCT to make sure you didn't miss anything from lectures and arrange information using WebCT."

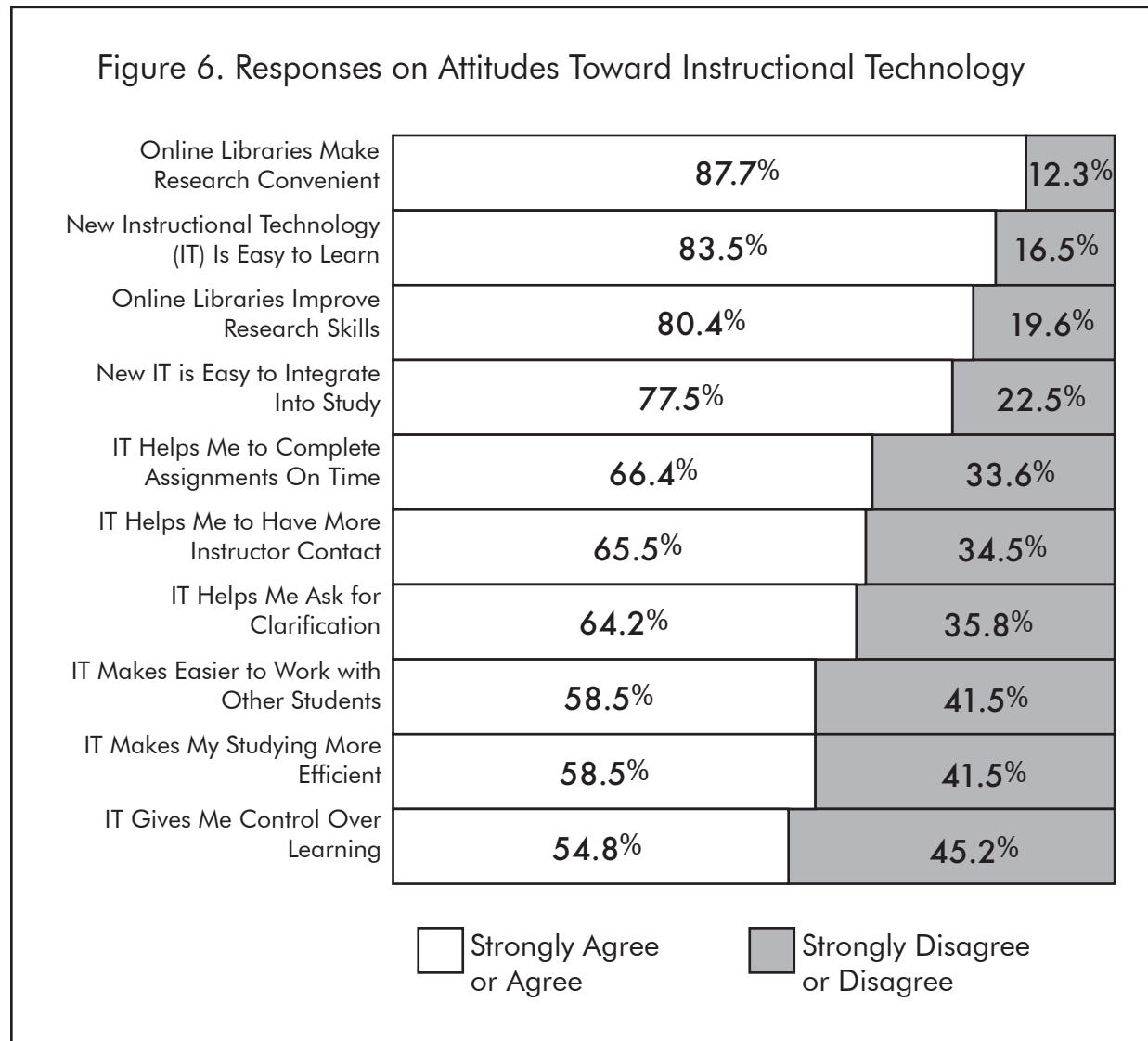
—A student's advice to others taking their first Web-enhanced courses

Attitudes Toward Instructional Technology

Question 9: "Please rate each of the following statements." (Answers were chosen from a four-item Likert scale and ranged from strongly agree to strongly disagree.)

We constructed several questions in this format by referring to Chickering and Ehrmann's seven principles of good instructional practice (see <http://www.tltgroup.org/programs/seven.html>). For example, one of the seven good practices encourages contact between students and faculty members, so we asked whether instructional technology helps students to have more contact with their instructors. For ease of reading, the top two and bottom two responses are combined in Figure 6.

Student attitudes were very positive overall. Statements about online library resources and students' ability to learn to use new instructional technology got the highest ratings. The interactive aspects of technology and the actual incorporation of technology into study habits were rated somewhat lower, but still positively by more than 50% of students.



"Make sure you know who to call when technical problems arise. Give yourself twice as long as you think you will need to complete the first assignment."

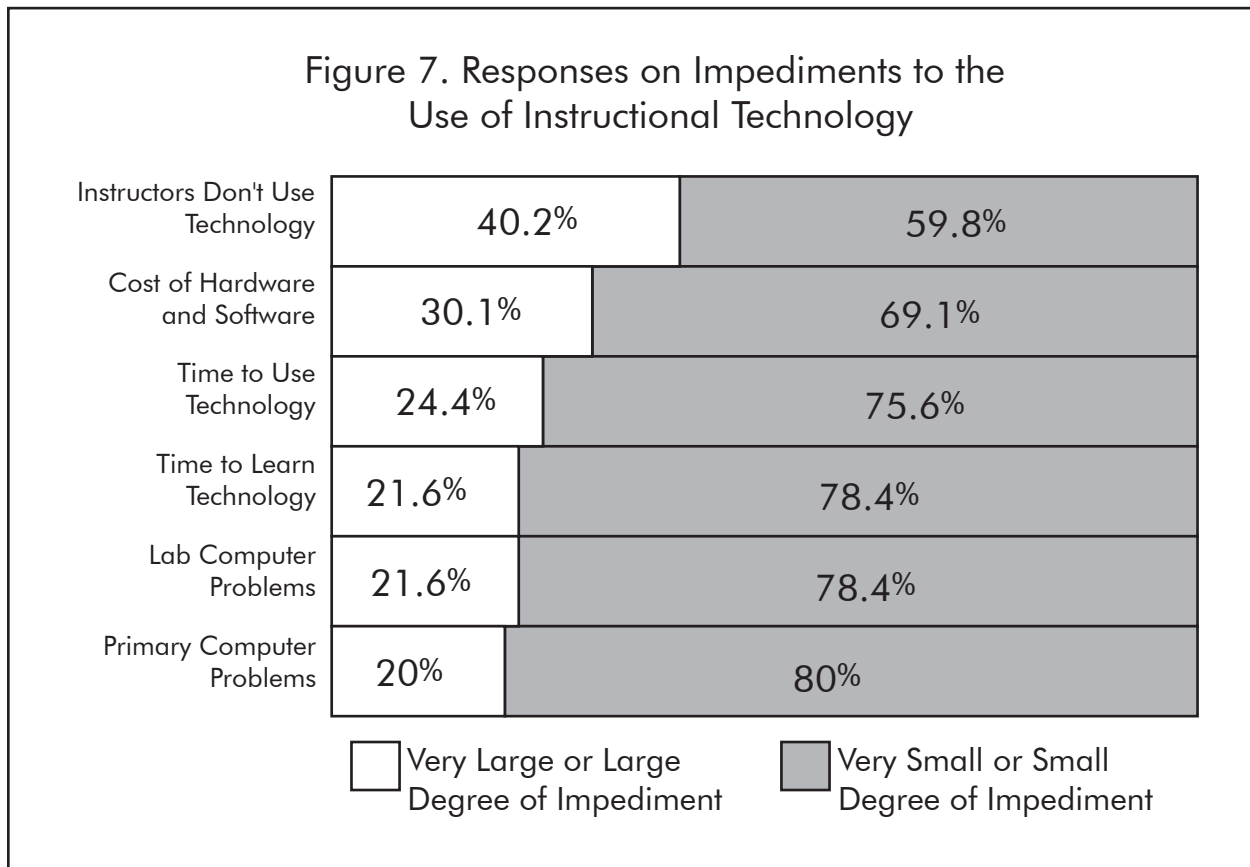
"It is easy to learn so don't worry if you at first feel overwhelmed."

—Two students' advice to others taking their first Web-enhanced courses

Impediments to the Use of Instructional Technology

Question 11: "To what degree has each of the following factors impeded your use of digital technology in your courses?" (Answers were chosen from a four-item Likert scale and ranged from very large to very small.)

Strikingly, nothing appeared to be a very significant impediment to students' use of educational technology. For every option save one, at least two-thirds of respondents indicated that the factor in question was a small or very small impediment to their use of digital technology. For ease of reading, the top two and bottom two responses are combined in Figure 7.



“Teach the teachers how to use the media in [the] classrooms. We always waste time at the beginning of each class.”

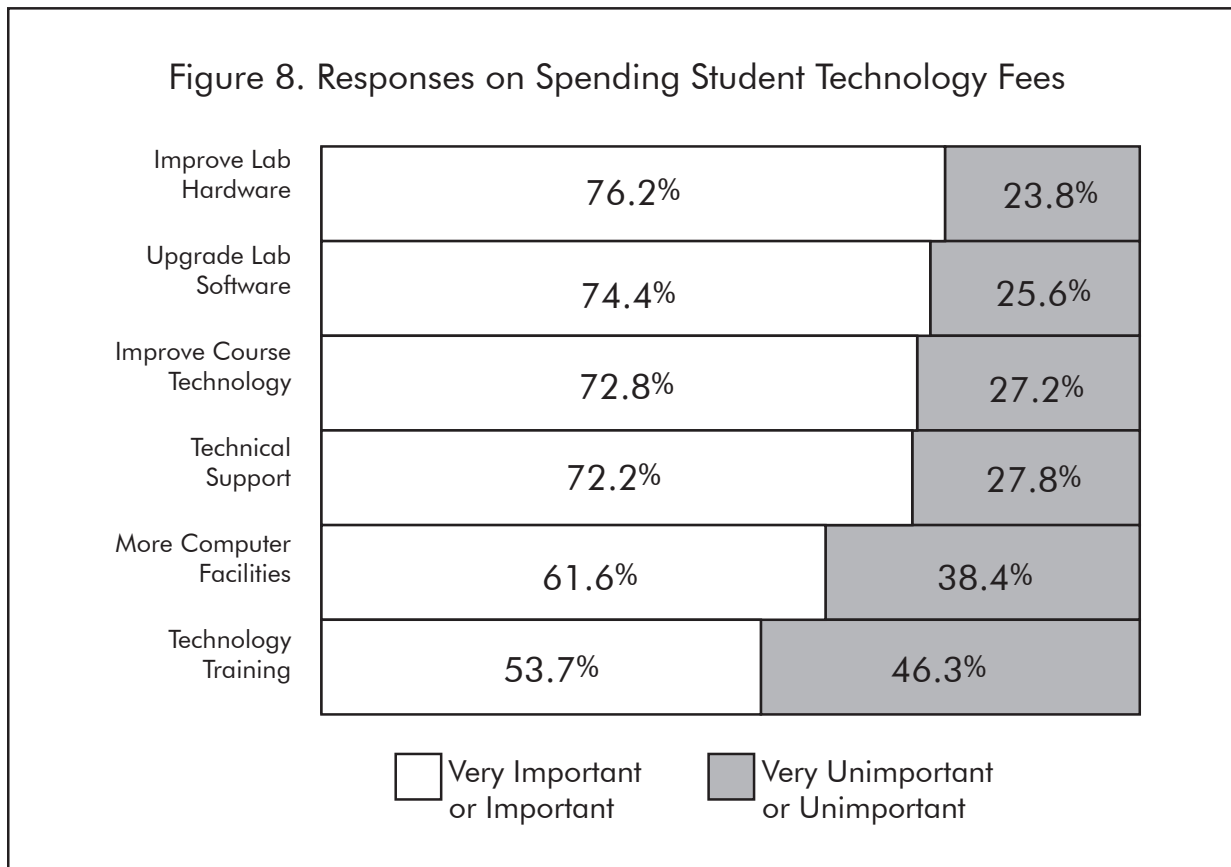
—A student’s advice to others taking their first Web-enhanced courses

Priorities for the Spending of Technology Fees

Question 8: “Thinking about how you would like your technology fees to be spent, please rate the importance of each of the following items.” (Answers were chosen from a four-item Likert scale and ranged from very important to very unimportant.)

The students rated computer labs, especially the hardware and software available in them, as their top priorities, although their responses to other survey questions indicated that they were by-and-large quite satisfied with campus computer labs. Their concern for lab hardware and software may therefore be an expression of priorities for the future, rather than a criticism of the labs’ present condition.

Students’ concern to improve course technology (course Web sites, WebCT sites, e-mail, etc.) was notable. There also was a striking contrast between the importance to students of technology support and the relative unimportance of technology training. For ease of reading, the top two and bottom two responses are combined in Figure 8.



"Encourage your professor to take full advantage of [the technology's] features."

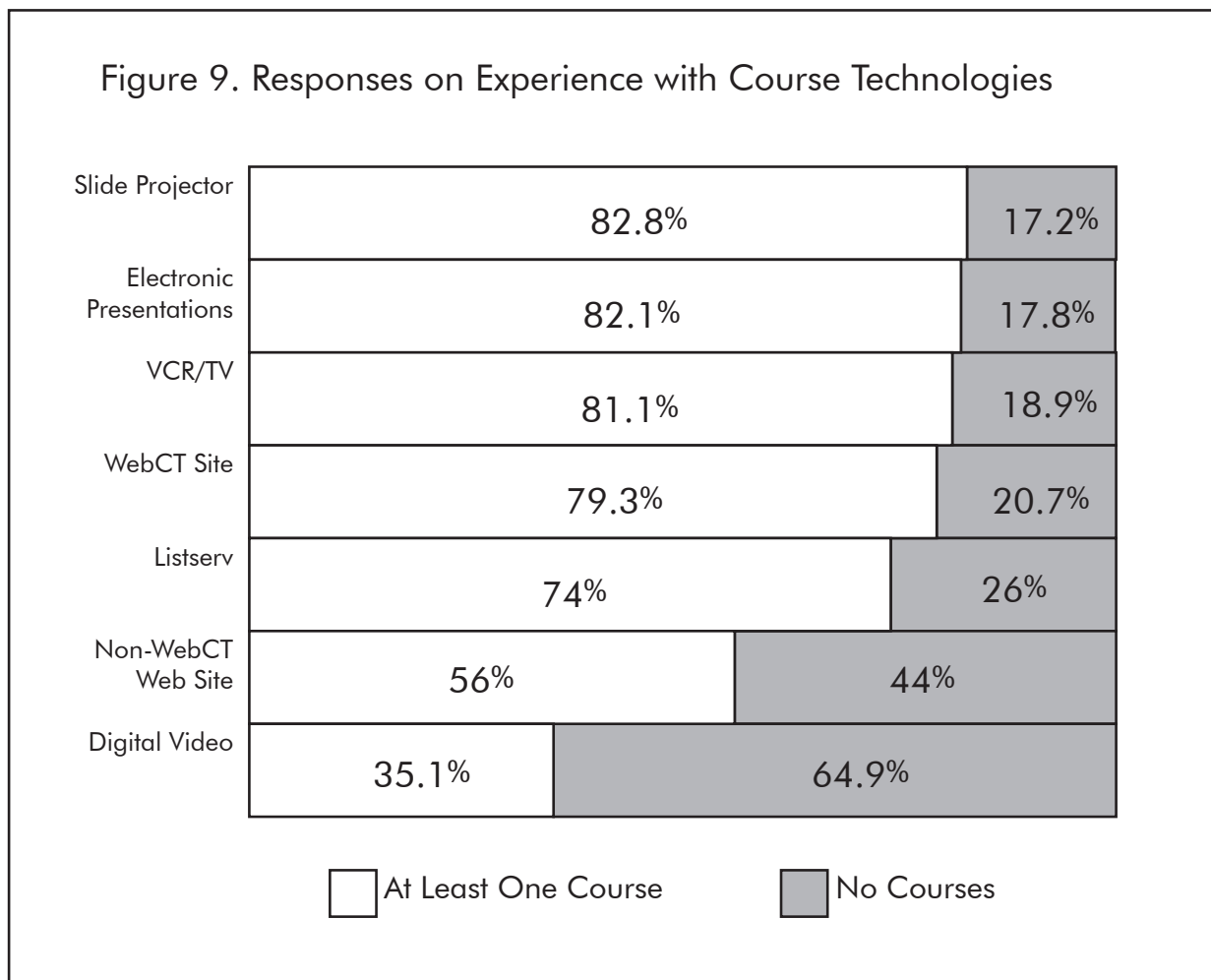
"[A]t the beginning of the semester there were several problems with computer labs and web ct's [sic] but as the year progressed such services became more reliable."

—Two students' comments to others taking their first Web-enhanced courses

Experience with Course Technologies

Question 14: "Approximately how many courses have you taken in which the following instructional technologies were used (including your current courses)?" (Possible answers included more than 10; 6-10; 1-5; and 0.)

Figure 9 shows the percentage of students who have taken at least one course using the technologies in question. Two older, nondigital technologies—slide projectors and VCRs/TVs—were reported still to be



very common, but certain digital technologies appear to have caught up: electronic presentations, WebCT sites, and listservs.

However, the number of students who have taken 6 or more courses in which VCRs/TVs (36.5%), electronic presentations (30.2%), and slide projectors (34.4%) were used is much greater than the corresponding number for WebCT sites (14.7%) and listservs (22.4%). This may be because WebCT is a relative newcomer to the University of Minnesota campus. (It was first offered in May 1999.)

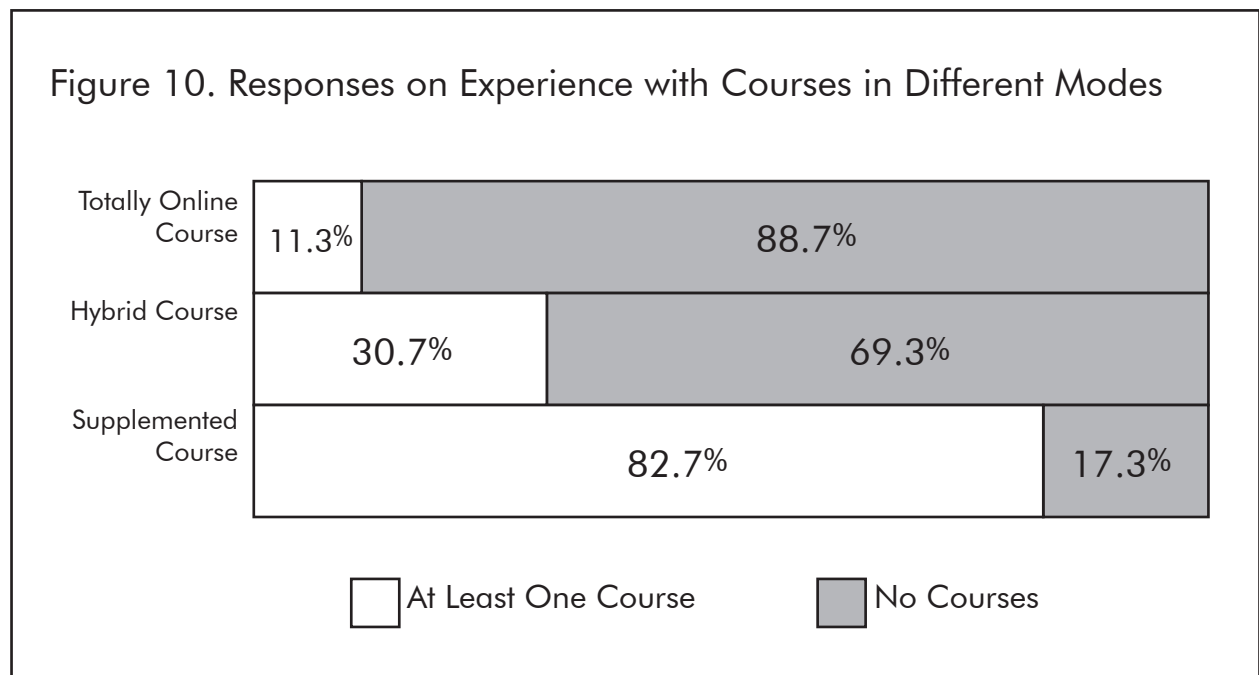
“Be patient and be willing to learn the new technology that will be used now and in the future.”

—A student’s advice to others taking their first Web-enhanced courses

Experience with Courses in Different Modes

Question 13: “Approximately how many courses (including your current courses) have you taken that were delivered in the following modes?” (Possible answers included more than 10; 6-10; 1-5; and 0).

This question defines three different “modes,” or ways in which instructional technology can be integrated into college courses:



- no face-to-face interaction (totally online course)
- decreased face-to-face and increased online interaction (hybrid course)
- face-to-face interaction supplemented but not decreased by online interaction (supplemented course)

Figure 10 shows the percentage of students who have taken at least one course delivered in the mode in question. It demonstrates substantial differences in how frequently students have encountered each one.

Summary of Highlights

Use of Technology

Certain digital technologies appeared to be catching up with older, nondigital technologies in terms of frequency of use in education. About 80% of students reported that they have encountered listservs, electronic presentations, and WebCT sites in at least 1 course, a figure comparable to that for VCRs/TVs and slide projectors.

Additionally, 66.6% of students reported that they found WebCT sites useful or very useful—the highest such score given to any instructional technology.

Finally, first-year students were more likely to have used and be comfortable with synchronous online modes of communication such as chat tools and instant messaging.

Attitudes Toward Instructional Technology

In general students reported strongly positive attitudes toward the effects of instructional technology on their educational experiences.

They reported strong satisfaction with online library resources and with the introduction of new instructional technology, and somewhat weaker satisfaction with the interactive aspects of technology as well as with the effects of technology on studying and assignment completion.

Satisfaction with Services

Students expressed very high levels of satisfaction with the accessibility of and the equipment in campus computer labs.

Students' indicated that their highest priority for the spending of technology fees is keeping the software and hardware in the labs up-to-date. Providing technology support for students was ranked very highly as well.

IMPLICATIONS

Students

Students will be interested in their peers' answers to our open-ended question, "What advice would you give to a student using Web-enhanced courses for the first time?" Themes that emerged from this question include:

- **Keep your chin up.** ("Don't worry if you at first feel overwhelmed.")
- **Don't slack off.** ("Make sure you keep up with the work and don't fall behind.")
- **Ask for help when you need it.** ("Look for help and technical support—it is available.")
- **Learn the technology, it's worth it.** ("Take advantage of the [W]eb! It decreases stress when class cannot be attended.")

Faculty and Staff Members

Faculty members, administrators, and instructional technology staff members may wish to note that the results paint an encouraging picture of student demand. Students cited instructors failing to use instructional technology as the most salient barrier to their use of such technology, and improving course technology (course Web sites, online communication, etc.) as one of their highest priorities for the spending of technology fees.

Other top priorities for the spending of technology fees included lab hardware and software and technology support (though not technology training) for students.

Additionally, our data analysis indicated that attitudes toward and the use of educational technology was not affected by students' gender or year in school. For instance, women did not have different attitudes toward technology, report more or different impediments to their use of technology, or want their technology fees spent differently than men.

Furthermore, first-year students did not have significantly less experience with digital technology than other students, nor did they report greater or different impediments to their use of technology.

NEXT STEPS

Our intention is to deliver the survey to students in all the colleges on a biannual basis. We thereby hope to gather longitudinal data about University of Minnesota students. Information about changing patterns in students' experiences with and attitudes toward educational technology should help the University community administer and deliver technology-enhanced learning programs of all sorts.

We will supplement the student survey with a survey of University of Minnesota faculty members that will collect information about their aspirations in the area of educational technology, the barriers they face, the successes they have had, and their preferred ways of learning about new technologies.

More Information

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"[D]on't become too frustrated as it is a privilege to be able to access school info from elsewhere."

"The computer is your friend."

—Two students' comments to others taking their first Web-enhanced courses

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