

**University of Illinois; Student Perceptions of  
Instructional Technology Use**

**Evaluation Report – December 2003**

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**Submitted to:**

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**Executive Summary**

The main aims of the following evaluation were to gain a student perspective of how University of Illinois instructors are using instructional technologies and how effective the use of technology is in increasing student learning. Guided by key questions, a qualitative approach was used to collect data in order to achieve the two desired outcomes of the project:

- *To gain a better understanding and communicate findings of how instructors are using technology in the classroom*
- *To gain a better understanding and communicate findings of how students perceive and feel about the use of technology in teaching and learning*

During the months of November and December 2003, focus groups were conducted to adequately explore these issues. Participants were undergraduates at the University of Illinois, representing 20 different major fields of study.

Students overwhelmingly reported that PowerPoint and the overhead projector were the most common technologies used. Overall, students reported that their instructors use PowerPoint in about 90% of their courses and the overhead is used in approximately 85% of courses. Even in classrooms that “have all of the equipment,” the overhead projector is still solely being used by instructors with great frequency.

Students expressed a nearly unanimous conclusion that having notes posted on the Internet was the best use of instructional technology and highly beneficial to their learning. Providing an outline of the notes before class seemed to serve the greatest benefit for increasing their learning and understanding of information.

Other advantages included that the use of technology facilitates a deeper understanding of conceptually difficult information. One student expressed that “technology really helps to visualize things that you wouldn’t get out of reading a book or by hearing them.”

From the data, it appeared that students enjoyed and appreciated faculty integrating instructional technology into the classroom. The use of multiple presentation modes, such as PowerPoint, overhead, TV/VCR, seemed to “keep things interesting.”

However, the main factor that students believed crucial for successful use of technologies was “instructors knowing how to use them.” Even though the largest benefits can be gained by presenting the information in a smooth, coordinated manner; students perceived that about 75% of instructors who use technology “do not know how to use it” and about 60% of instructors “do not seem confident in using technology in the classroom.”

Therefore, the largest disadvantages to student learning were found “when there is a problem with the technology” or “when instructor does not know how to use

technology.” Problems often lead to disruption in learning, as it is “hard to get the class back on track” or you just “have to sit there and do nothing.”

Technology is an integral part of completing class work and assignments outside of the classroom as well. The participants agreed that they have to be connected about 90% of their day. Whether it is to do a homework assignment, take a quiz, or just check to see if an instructor sent important notes over e-mail, they feel that they need to be online for courses multiple times a day.

In conclusion, data suggested that students perceive instructional technology as a large benefit and think it should be incorporated in teaching. However, most teachers are perceived as not “being able to use technology.” Consequently, the overwhelming response to this was to provide more training to instructors. Reasons included: so they won’t stumble around with it, so things would seem to run more smoothly, to increase confidence in using technology, so they know how to use technology. All students were supportive and compassionate towards the faculty, realizing that technology takes a great deal of time and effort to learn. However, students agree that to help them learn...it may be worth the time.

## **Background and Rationale**

The use of instructional technology in higher education has increased substantially over the past several years. As instructional technology offers the potential for an important enhancement of teaching and learning in higher education (Spotts, Bowman, and Mertz, 1997), educators often try to integrate technology into their teaching. However, the question still remains as to how instructors are using a wide variety of technologies in their classrooms. Another largely underrepresented issue in higher education research is how the use of instructional technology impacts student learning.

This evaluation of instructor use and effectiveness of instructional technology at the University of Illinois Urbana-Champaign greatly adds to this area of research. With a focus on student perspectives, results from the evaluation may provide valuable information that will help us to determine what technologies are being used in undergraduate classrooms across campus, as well as how students view the impact of instructional technologies in terms of their learning.

Throughout the past few years, the University of Illinois has experienced the rapid development, implementation, and integration of classroom technologies. Most classrooms provide multimedia capabilities to faculty and instructional staff teaching in the classrooms. These classrooms enable instructors to incorporate video, computer images and programs, print materials, and other media into a single presentation.

As a result, campus-wide faculty surveys have been administered to explore instructors’ perceptions of these technologies, how the technologies are being used, and the many innovative ways in which such technologies are employed in the enhancement of the learning process.

During Fall 2002, the Office of Educational Technology (OET) in the College of Education College of Education examined the use of technology in 12 technology-enhanced classrooms, plus the Faculty Development Center in the College of Education.

A survey was developed to evaluate instructors' attitudes toward technology integration into classroom instruction.

The results of the OET survey reported that the most commonly used technologies were overhead projector, portable laptop computers with projection, and VCR's. The faculty overwhelmingly appreciated having the technology in their classrooms. 100% of those surveyed felt that technology "facilitated student interactions," and "helped achieve class goals." 90% felt that it helped students understand difficult concepts, 95% reported using technology in their classrooms, 85% felt that the technology installed was appropriate for their needs, and 90% indicated that they have all the technology they need in these rooms. However, about half of participants confessed that they had problems accessing the technology in the classroom, and 40% confessed that they had technical difficulties using the technology.

Most recently in Spring 2003, Classroom Technologies, a division of Campus Information Technologies and Educational Services (CITES), administered an online survey to faculty and staff. Several questions were aimed at discovering how often the systems were used and how important their use was to classroom teaching. One of the primary goals of the survey was to ascertain how faculty and staff generally perceive Integrated Teaching System (ITS) classrooms. These ITS classrooms include a computer, VHS VCR, and an overhead camera (used for print materials and solid objects). Some of the ITS rooms also contain video Laserdisc and/or DVD players. All of the media source units are projected onto the classroom screen, using a hi-resolution graphics projector.

The results of the CITES faculty survey found that 92% of respondents said that the Integrated Teaching System is "very important" or "important" for their instruction and 91% of survey respondents said they used the ITS equipment at least once a week, if not more often. Very few of the instructors who use these classrooms are not using the equipment at all, according to these results. It was confirmed in the survey that the vast majority of instructors are presenting their lectures via Microsoft PowerPoint.

Based on these surveys, technologies found in classrooms seem to be very well utilized and highly effective in increasing students learning. At the same time what seems to be lacking is the students perception of how instructors are using technology and how effective the use of technology is in increasing their learning. On-going, intensive efforts must be made to gain a complete understanding of all components of integration of technology in teaching and learning.

It is becoming very apparent that the role of the instructor and the nature of classroom activities are changing, as faculty try to integrate technology into their teaching. Drawing from the results of the OET 2002 and CITES 2003 faculty surveys, many instructors were positive about the effectiveness of the technology in their teaching. However, how can we be certain that the technology used is having the desired outcome on student learning? For this we need to know answers to questions that can only be obtained from collecting data from university students.

Campus Information Technologies and Educational Services (CITES) agrees that the students' perspective plays a crucial role in designing classrooms and implementing technologies in order to enhance teaching and learning. Under the supervision of Dr. John Ory, Director of The Office of Instructional Resources, and with the assistance of CITES Senior Coordinator of Classroom Support and Training in the Division of

Classroom Technologies, Brian McNurlen, and CITES Assistant CIO for Educational Technologies, Lanny Arvan, an evaluation was commissioned.

### **Purpose of the Evaluation**

The primary purpose of the evaluation is to determine student perceptions of how instructors are using and integrating classroom technologies into teaching practices at the University of Illinois, Urbana-Champaign. The evaluation will additionally focus on how effective students find the use of technology in the classroom for their learning.

- *The results will be used to increase the knowledge of what technologies are being used in classrooms from a students' perspective.*
- *The results will assist instructors in decisions of what technologies to include in their teaching practices to optimize the learning environment.*

### **Context**

Looking for a project to fulfill the evaluation research specialization, I was referred by Dr. John Ory to Brian McNurlen, as he had vested interests in similar issues. Brian originally worked for the Office of Instructional Resources, Division of Engineering Services (DES). Early July 2003, DES became a division of CITES and was renamed, Division of Classroom Technologies. This division is maintained by Lanny Arvan, CITES Assistant CIO for Educational Technologies. As the evaluation encompassed many interests of CITES, Lanny Arvan became involved in the planning and design of the evaluation. Numerous working sessions were scheduled with Brian and few with Lanny. Periodic reports of progress of the evaluation were conveyed through e-mail reports. E-mail was also utilized to schedule meetings, keep key stakeholders informed about evaluation activities, and to send drafts of questions to solicit feedback. All questions were developed with the assistance of these key stakeholders, in order to ensure that their needs and interests were adequately satisfied.

### **Key Questions**

- 1) What are student perceptions of the frequency with which specific technologies are used in the instruction they receive?
- 2) How effective are instructors in integrating technology into the classroom?
- 3) How do students believe the use of technology impacts their learning?
- 4) What are students saying about technology use in the classroom? What do they want their instructors to use to optimize the learning experience?
- 5) To what extent are students using the information presented via technology in integrating concepts, generating knowledge, learning information?

### **Data Collection**

During the months of November and December 2003, five focus groups were conducted to assess instructor technology use and the effects on student learning.

## **Participants**

Thirty undergraduate students at the University of Illinois, Urbana-Champaign, participated in one of the five focus groups conducted. Demographics of participants are represented in the following table:

<b>Category</b>	<b>N</b>	<b>%</b>
<b>Gender</b>		
Male	14	46.7%
Female	16	53.3%
<b>Age</b>		
18	2	6.7%
19	5	16.7%
20	5	16.7%
21	10	33.3%
22	5	16.7%
23	2	6.7%
24	1	3.3%
<b>Year in School</b>		
Freshman	2	6.7%
Sophomore	7	23.3%
Junior	5	16.7%
Senior	16	53.3%
<b>Major Field of Study</b>		
Accounting	1	3.3%
Advertising	1	3.3%
Biology	1	3.3%
Biology/Education	1	3.3%
Cellular and Structural Biology	1	3.3%
Chemistry	1	3.3%
Computer Science	2	6.7%
Education	1	3.3%
English	3	10.0%
English/Secondary Ed	2	6.7%
Finance/Econ	1	3.3%
Health Administration	1	3.3%
History	3	10.0%
Human Development and Family Services	1	3.3%
International Studies	1	3.3%
Kinesiology	1	3.3%
Math	1	3.3%
Music Education	2	6.7%
Physics	1	3.3%
Psychology	3	10.0%
Undecided	1	3.3%

## ***Recruitment***

Two different methods of recruitment were utilized in selecting the students for participation.

Nine students, composing the first two focus groups, were systematically selected from the 2003-2004 University of Illinois phonebook/directory. Students were chosen based on major field of study in order to represent cross-campus perspectives. Personal phone calls were placed to invite the student to join us for pizza and a discussion about instructors' use of technology in the classroom. If the student said that they would participate, a time was scheduled. This procedure continued until enough participants were obtained. Follow-up phone messages, as well as e-mail reminders were sent to those selected. Pizza, soda, and having their names entered into a \$25 gift certificate raffle were used as incentives for participation.

Twenty-one students took part in this evaluation as part of a course requirement to fulfill research hours in a participant data pool. While these students were required to have a set number of participation hours, they were given the choice to take part in any number of studies on numerous topics. Sign-up sheets were posted that included date, time, location, and a short description of the topic. One hour of research credit was given for participation.

## ***Procedure***

Focus group sessions were conducted using a semi-structured interview guide (See Appendix A). The predetermined questions served as a guide to cover some of the issues relevant to this evaluation. However, additional questions were asked for clarification and the conversation was refocused based on issues that arose during the interview. In addition to the questions asked, all participants were encouraged to address additional observations, interests, and concerns about technology use in the classroom and its impact on their learning. Sessions lasted approximately one hour.

The focus group sessions were audio-taped and later transcribed. Additionally, handwritten notes were taken during the sessions and added to the transcripts. A content analysis was then used to examine the data, in order to identify emerging common themes and issues.

## **Results**

### **Frequency of Technology Use in the Classrooms**

Analysis of the data suggested that the most frequent technologies being used in the classroom are PowerPoint and the overhead projector. Overall, students reported that their instructors use PowerPoint in about 90% of their courses and the overhead is used in approximately 85% of courses. However, all students felt that use of certain technologies is determined by factors such as class size, level of course, and discipline studied.

#### Class Size/Level of Course:

“I would say the larger the class the more technology they use, like microphones and stuff on screens for everybody to see, like smaller classes they just write it on the chalkboard or something.” (Male, Accounting, Senior)

“Most large lecture courses and lower level courses use PowerPoint. The smaller and higher level the course, the more overheads, and writing on the chalkboard is used.” (Male, Physics, Junior)

#### Discipline Studied:

“In my classes it’s [PowerPoint] used 100 % right now, but I am taking all courses in my major.” (Female, HDFS, Senior)

“I don’t know it depends...like my psychology classes have PowerPoint 100%, but history teachers don’t. Some use overheads, but mainly they...just lecture. (Female, History, Senior)

“Well, none of my teachers use PowerPoint they use Adobe, Acrobat stuff... like all my Computer Science classes use that.” (Male, Computer Science, Sophomore)

Students have come to expect the use of PowerPoint in the classroom and “feel like something is missing when it’s not there.” Even in classrooms that “have all of the equipment,” instructors are still solely using the overhead projector with great frequency. Other instructors may “switch back and forth between PowerPoint and using the overhead.” Many students realize that much time and effort is needed to prepare to teach with technology, and therefore ease of use is attributed to the frequent use of the overhead projector. The majority of student’s comments reflected, “that [professors] don’t want to go through the hassle to create the slides, it’s easier to just copy stuff onto a transparency.”

#### **Advantages of classroom technology use**

Most of the participants believed that technology use by instructors greatly enhances student learning and “have come to expect it in their classes.” Students expressed a nearly unanimous conclusion that having notes posted on the Internet was the best use of instructional technology and highly beneficial to their learning.

Although, all students agreed that they liked having the notes posted on a course website, there was some variation in responses for when it is most beneficial to post notes and how much information should be included.

Few students liked all of the notes posted before class:

“I like when all the notes are posted before class. I think it really helps when you bring the notes with you. You have all the information there.” (Female, HDFS, Senior)

“I don’t really like taking notes, so it helps if I have all the notes in front of me.”  
(Male, English, Junior)

However, even if all notes are posted after class it may still be beneficial:

“You don’t have to ask the instructor to slow down, because you know she is going to post everything that was covered after class.” (Male, Undecided, Freshman)

“If you missed a concept in class, you can always see the all the notes after class and then try to understand it.” (Female, International Studies, Sophomore)

The majority of students fell in the middle of this continuum. The major concern was that if all the notes were posted “it would increase attendance problems...most students wouldn’t show up to class if all of the notes were posted on the Web.” Some students agreed that it “is not really the technology’s fault. The same students that would skip class would skip regardless of how much information was posted.” Students felt that “a lot of teachers have a good way to mediate that though by only posting partial notes.” Providing at least an outline of the notes before class seemed to serve the greatest benefit for increasing their learning and understanding of information.

“Having an outline can enhance the learning process by facilitating discussion and having time to think about the issues.” (Female, Education, Sophomore)

“When you bring the outline to class so that you can think about the course content rather than trying to write down every word.” (Male, Accounting, Senior)

“You can just listen to them and you don’t have to worry about writing every little word down you can actually try to understand it and it helps a lot.” (Male, Biology, Senior)

“An outline helps us interact more, because if I’m there spending minute after minute scribbling down notes then it’s time to go onto the next slide and I didn’t have anytime to think about what I just wrote.” (Female, Advertising, Senior)

“Technology helps you actively listen, but if your just trying to write everything this person said, you’re just worried about each word.” (Male, Psychology, Senior)

Some comments expressed concern for providing too much information.

“I don’t like PowerPoint when they put too much information on the screen, I can’t think about it...and they seem to cover it quicker. This is also true if they post all of their notes. They figure that we have all of the notes, so they go through the information quicker. If they are writing it on the chalkboard you can follow them...keep their pace...I guess as long as too much information isn’t on a slide, like just an outline, that would be OK.” (Female, Music Education, Senior)

“There can be a misuse of technology. Like when they just put up all their notes and just read them...this makes the class very boring. After awhile you don’t even listen because you have all the information right there in front of you. If the purpose of the university is to learn, then you probably don’t want to post all of

the notes because student's tend to either skip class or tune out the instructor.”  
(Female, History, Senior)

Most students hold the belief that the use of technology facilitates a deeper understanding of conceptually difficult information. One student expressed that “technology really helps to visualize things that you wouldn't get out of reading a book or by hearing them.” The notion that technology helps to see connections in course work appeared to hold true for all students, as they provided examples from their specific major. An advertising student expressed, “we would talk about ads, but then there's so much more impact when you see them.” Or as a history student stated, “technology helps understand context of the time period when see a movie.” Even a music education major reported that she greatly benefited from the use of CD player in the classroom. “By allowing you to hear music, you can actually feel what we are trying to learn.” Other students mentioned specific courses, such as Physics 101. “The use of animated downloadable problems helps to make connections with material. You can see the diagram so you don't have to try to figure out what they are talking about”

“I think it helps when a lecture has a picture or diagram then you can see the information.” (Male, Biology, Senior)

“Technology helps you bring home major points. One of my professors uses online links... he will show a clip and he will illustrate something that I wouldn't get otherwise. And he will bring in this clip, something he downloaded right there, and then I can understand the concept.” (Female, HDFS, Senior)

“Some of my professors have their PowerPoint presentation and then throughout it will have websites included. So if they are trying to make some point they can go to a company or something and illustrate an actual example online and that's up to date and shows an actual example of stuff. And I thought that was cool to use.” (Female, Finance, Senior)

However, there are times in which a student would prefer to be taught without the aid of technology. For courses like Math and Chemistry, students believe that “the chalkboard is just fine.” They all agreed that the chalkboard was best for problems that “needed to be worked out” or problems that are best taught through a “dynamic demonstration.”

In addition to posting notes, setting up a course website or creating a discussion board were also considered technologies that increased student satisfaction with classes and can provide large benefits for their learning. Most students agreed that discussion boards serve a way to check your own work, feel comfortable asking questions, and provide multiple interpretations of answers.

“It is really nice, because then if you think it is a stupid question it's easier to ask it on a discussion board than in front of the whole class.” (Female, History, Senior)

“You get a lot of people's responses instead of the teacher just saying ‘Oh, this is the absolute right answer,’ you get a lot of perspectives on it.” (Female, Health Administration, Freshman)

A student majoring in English, expressed that it builds skills and increases confidence in her own assignments. "I often read what other students write to serve as a guideline. It helps me strengthen my own writing." She further noted that it was optional to post your work, but most students do it to help each other. Most students agreed that the largest benefit of discussion boards were when they were not required.

"I hate discussion boards when they are required, but I have a couple classes where they set up a discussion board right before a test and then I think it's really helpful because people are checking it all the time and the professor is checking it all the time and I think it's made a lot of my classes better." (Female, HDFS, Senior)

Regardless of whether the discussion board is required or optional, all students agreed that "teachers need to post on it or check on it if they are going to set it up." They need to get involved "if they give no explanation and don't answer questions that you post, it is so bad...it's horrid" (Male, Computer Science, Sophomore)

From the data, it appeared that students enjoyed and appreciated faculty integrating instructional technology into the classroom. The use of multiple presentation modes, such as PowerPoint, overhead, TV/VCR, seemed to "keep things interesting."

"I like the use of technology, instead of just a lecture. It seems to keep me awake!" (Male, English/Secondary Ed, Sophomore)

"I think the use of different technologies in the classroom helps keep my attention. Every now and then it is great to switch focus...it really helps sometimes to pay attention and not get lost in their words." (Male, Psychology, Senior)

However, the main factor that students believed crucial for successful use of technologies was "instructors knowing how to use them." The largest advantage for learning was not dependent on the specific technology used in the classroom per se, but by being able to use the instructional technologies to present the material in a smooth coordinated manner.

"I only like technology use in the classroom when it is done effectively...like it seems to flow. When the instructor is running back and forth and doesn't appear confident with using the technology...it almost becomes distracting." (Female, Psychology, Senior)

"When the instructor can't switch back and forth between technologies like going from the TV to PowerPoint to the overhead in a smooth manner; it becomes frustrating." (Female, History, Senior)

This may not be fault of the instructor, but attributed to the design of the room itself.

"If the room is equipped to do that [teach with multiple technologies] it's fine. Like I have class where they don't have a computer, so they are bringing in a laptop. So then when they want to switch from PowerPoint to the overhead to they have to move and shuffle so it gets kinda frustrating." (Female, HDFS, Senior)

“Often it is not the fault of the instructor. The room doesn’t allow them to move around easily. When they stop to change technologies, sometimes that class starts talking. That’s kinda frustrating.” (Female, International Studies, Sophomore)

Overall, students comments clearly portray great advantages of using technology in teaching. Most students appreciated instructors making the effort to try to teach with technology. However, if the technology is not well integrated in the classroom, it is often perceived as more of a frustrating experience.

### **Disadvantages of Instructional Technology Use**

Even though the largest benefits can be gained by presenting the information in a smooth, coordinated manner; students perceived that about 75% of instructors who use technology “do not know how to use it” and about 60% of instructors “do not seem confident in using technology in the classroom.”

“I think it’s not really a problem with technology going wrong...it appears more that the instructor doesn’t know how to do something...Professor running back and forth trying to switch technologies, and then we have to call someone to get the problem fixed.” (Female, History, Senior)

“Most of my professors don’t really seem comfortable with using technology. They try, but when things go wrong they get frustrated and then we just sit there and don’t do anything.” (Female, English, Junior)

About 50% of students did not believe it was a problem with the instructor, but instead blamed the technology.

“This may not all be due to the instructor, but the technology may be inadequate. Most of the time the cord is missing or then they can’t connect.” (Female, Psychology, Senior)

“You have to have some compassion for teachers who use technology. Like when we use technology in our class presentations, it really isn’t as easy as it seems. Often there is a button to push or cord that you forgot to plug in.” (Female, Education, Sophomore)

Sometimes there were differences of opinion of who was at fault, even between students referring to an experience in the same course:

“A lot of my classes use PowerPoint, some professors still don’t know how to use it, but for the most part they do...like a lot of them use it instead of writing on the chalkboard. They sometimes try to use it, but then they get frustrated and turn it off.” (Female, Biology, Senior) This comment was quickly followed by the response of another participant “Well, we’re in the same class and I think that it’s not that they don’t know how to use PowerPoint, it’s that they don’t know how to connect their laptop to the computer.” (Female, Biology/Ed, Senior)

“We’re in class together (reference to another female in focus group) and in almost every class and we only meet once a week, almost every class the instructor tries to use some form of technology, often a video clip. I think most of time what happens is that he can’t get the sound to work. So you can see it, but you can’t hear it. And so he gets really frustrated and winds up calling the tech people to come...and we sit in class and don’t do anything...I think that’s frustrating...” (Female, Music Education, Junior). The member of the same class chimed in: “And we get out early sometimes, he’s like ‘Well like we only have so much time left, there’s no point in starting this right now.’ He is a good teacher...but it’s more of just the technology...I don’t think it’s his fault. At first I don’t think he knew how to use it, but now he does.” (Female, Education, Sophomore)

The largest disadvantages to learning were found “when there is a problem with the technology” or “when instructor does not know how to use technology.” Problems often lead to disruption in learning, as it is “hard to get the class back on track” or you just “have to sit there and do nothing.”

“At the beginning of one of my classes, the first day of class the stuff wasn’t installed that he needed, he didn’t know how to use the computer...it was like a disaster. We didn’t do anything for the entire class period, because he didn’t know what to do on the computer for like 40 minutes and then he discovered the stuff wasn’t installed so we couldn’t do anything.” (Male, Computer Science, Sophomore)

“I have a class where it seems like every day something goes wrong with technology. We just sit there for like 15 minutes and then he gives us a break and then when we come back, it’s still not fixed, so often we just go home. It is almost pointless to try to learn anything in that class.” (Female, History, Senior)

“There is a box in front of the class that has stuff in it and like if it doesn’t work then he’s like OK rest for 20 minutes and we come back to it...it’s like that all the time...so we lose so much class time because something went wrong.” (Male, English, Junior)

Other students reported that instructors “just let them go” or “fill time with busy work.” Students also commented on how their instructors try to solve the problem. Most instructors call Tech Support, ask students to help fix the problem, or bring a back-up method (i.e., transparencies). It is not often viewed as a distraction to their learning, but instead more frustrating and annoying. “You just sit there and wait.”

The only activity using instructional technology that appeared to have a negative effect on student learning were online quizzes that allowed for submitting multiple responses in order to get the correct answer.

“I just go through and I’m like ...a...a...a...a... and I just write down what it is and I don’t pay any attention. So I don’t want to say limit the number of tries, but I mean that’s not good for learning.” (Male, Chemistry, Sophomore)

“When I teach, I am not going to create quizzes that you can put in as many answers as you want. Most students just refresh the page enough times to get to

questions that they know the answers to. You don't really learn anything, except how to beat the system." (Female, History, Senior)

"If somebody got the answers the night before it was due, then you can just put in their answers...that wouldn't happen if it was a quiz taken in class." (Male, Biology, Senior)

"One of the problems is that it gives you so many chances that you could just click whatever you wanted and submit it and so like that's not right and you could click the other one...*So you don't feel that this is good for learning?* No, not at all." (Female, Biology/Education, Senior)

### **Technology's Role in Class Work Outside of the Classroom**

In addition to the common technologies used within the confined boundaries of the classroom, other instructional technologies are used by students outside of the classroom. The most common supplemental technologies reported included the use of WebBoard, WebCt, Blackboard, Moodle, and E-mail.

All of the participants agreed that they have to be connected about 90% of their day. Whether it is to do a homework assignment, take a quiz, or just check to see if an instructor sent important notes over e-mail, they feel that they need to be online for courses multiple times a day. They also all agreed that when they are online for course work they are also using IM, checking e-mail, and surfing the Internet while doing an online quiz or online homework.

"It's almost distracting sometimes, like if you have online homework, and I use the computer for a lot of entertainment, like talking to friends or e-mail or computer games...It's real hard to focus and do my physics homework or my chemistry assignments." (Male, Physics, Junior)

There was a slight difference in opinion of where completing the assignment was the most effective.

"I think a quiz online is harder to do than just going into the classroom and getting it done." (Male, Computer Science, Senior)

"Sometimes if you are going to spend the time online, it is easier to just go to class, take the quiz, and then you are done." (Male, Undecided, Freshman)

"The quizzes online though, you don't have to worry as much about them because you have your books and when you're in the class it's like a test and if you don't know it is going to get you a bad grade." (Male, Computer Science, Sophomore)

"I like having quizzes online. My room is more of a relaxed atmosphere than sitting at a desk." (Male, Chemistry, Sophomore)

Some students complete these online quizzes and assignments together, some do it individually, but they all agree that it's more of a personal preference. For example, they would be just as likely to complete a textbook assignment with classmates if they preferred to work together or complete the assignment alone if that was their preferred

learning style. Therefore, technology has little to do with the extent to which they engage in these activities with others and how they complete homework or take online quizzes.

Almost all students appreciate having a space that they could share and expressed that the online component often becomes the “focal point of the course,” as this is the place where you can check grades, access the syllabus and notes, and communicate with other students and the instructor.

“Like I get annoyed when a class isn’t online now, because I like to check my grades, know where I stand in the class and see if there are any notes posted...all that stuff.” (Female, HDFS, Senior)

Mixed feelings were expressed due to the frequency with which they felt that they needed to be connected to the Internet. Either it was perceived positively:

“Time management, saves time because you can do other things from home while doing your work.” (Male, Physics, Junior)

Or it could be frustrating because “professors send important things on e-mail and they assume you are checking your e-mail all the time.” (Female, English, Junior)

“I’ve had class where it seems like professors expect you to check your e-mail constantly and so if you don’t check your e-mail in a day or in a couple of hours, you might miss something important, so I get frustrated with that because than if you didn’t bring something to class...it’s like well I didn’t check my e-mail.” (Female, Biology, Senior)

Ninety-percent of students owned a personal computer, so ease of connecting and accessing web-based portions of a course were often not major issues. However, if they had to use computer lab on campus they felt it would be a very frustrating experience and a large inconvenience to have a course with an online component, especially because how often you need to be connected.

“For my first two years here, I didn’t have a computer and because we had to be connected all the time it was very difficult. Either the computer lab was full or sometimes the computers aren’t working and sometimes the person isn’t there to help you.” (Female, Advertising, Senior)

Overall, they did not feel that technology should ever replace the duties of the instructor. “Just because there are technologies to interact with and you can reach your professors online, you still sometimes need that face-to-face communication.” Additionally, they felt that all activities should not be placed online, because “sometimes you can learn better or are more motivated when sitting in the classroom.”

## **Suggestions**

Participants made some suggestions on various issues in order to increase their satisfaction with instructional technology use.

The overwhelming response was to provide more training to instructors. Reasons included: so they won’t stumble around with it, so things would seem to run more

smoothly, to increase confidence in using technology, so they know how to use technology.

“If you increase their confidence and skills, then hopefully they will be more effective in teaching with technology.” (Female, Advertising, Senior)

However, they all felt that it should be offered, but not required.

“If an instructor doesn’t want to use technology, they are not going to. It should be their choice.” (Female, Education, Sophomore)

The other frequent suggestion was to increase the hours of computer labs on campus.

“Computer labs should stay open later. It becomes frustrating if you have to use one late at night” (Male, English, Sophomore)

“There should be at least one 24 hour computer lab located in a central spot on campus” (Female, Education, Sophomore)

## **Conclusions**

Numerous conclusions can be drawn from student responses to the questions addressing instructor technology use in the classroom.

Students’ responses of PowerPoint and the overhead projector being used with great frequency in the classroom are consistent with other reports of technology use on campus. Both the CITES and OET faculty surveys reported similar findings. The technologies (i.e., PowerPoint, overhead) that faculty report using with great frequency, were also reported by students as being highly used.

The OET survey additionally found that the overhead projector tended to be used in a small classroom with relatively small class size, however, was still used in some of the larger rooms. This finding was also reflected in students comments regarding class size and the use of different technologies. Students expressed that frequent use of PowerPoint was often found in large lecture halls, with large class sizes. Overheads were mainly used in smaller classes, however, a few of their larger classes still used overhead transparencies. They attributed the differential use of technology among classes as an easier means to view the material. In a larger class, you need a larger presentation format and PowerPoint allows for a larger display than the overhead projector.

Overall, there is relatively high satisfaction with using technology in the classroom, if it is presented in a smooth coordinated manner. If the presentation seems disorganized this can be disruptive to the learning process. Students were unsure if their instructors were using technology effectively, because often it is not the fault of the professor, but the fault of the technology itself. However, when asked: “If their instructors effectively used technology or appeared confident in using technology,” students reported that 75% of instructors who use technology “do not know how to use it” and about 60% of instructors “do not seem confident in using technology in the classroom.” These results suggest that students often perceive more problems occurring than instructors report. According to the OET 2002 survey, only 40% of faculty confessed that they had technical difficulties. However, only 15% replied that they solved problems by

themselves. The latter finding is consistent with students perceptions that most faculty do not try to fix the problem.

Consequently, when problems occur it appears that this can be very disruptive to learning the material. Most students reported that you just sit there and wait, which becomes very frustrating, as it takes away from class time.

As most educators are embracing technology in teaching, most students have come to expect it and feel that “something is missing when it’s not there.” Strengthening the notion that the more they are exposed to technology in the classroom, the more comfortable they become learning with that technology. All students were supportive and compassionate towards faculty decisions to use or not to use technology, realizing that teaching with technology takes a great deal of time and effort to learn. However, students agree that to help them learn, it may be worth the time.

The use of instructional technology serves a number of advantages; helping the student understand the information, facilitating discussion, and sharing information. The most beneficial uses of technology seem to be posting an outline of notes on the Web or setting up a website for the student to access information, assignments, grades, and so forth. Even though it can be an inconvenience to be connected as many times as you have to be for class, it provides a shared space and the website often becomes a “focal point of the course.”

The current evaluation provides insight into student’s experiences regarding technology use in the classroom. This evaluation tried to represent multiple student perspectives from a wide variety of campus departments. However, due to time constraints only a relatively small population was able to be included. Thus, limiting the study, as no cross-department comparisons can be made. Furthermore, it did not appear that there were gender differences regarding the benefits of technology or differing responses based on a student’s year in school.

### **Future Directions**

This evaluation provides some of the fundamental answers needed to address students’ perceptions of instructor technology use. However, this topic needs to be further explored to reach any definitive conclusions. Some recommendations for future directions are to conduct a campus wide student-survey, conduct more student focus groups, observe faculty in the classroom, and conduct focus group sessions with faculty. The use of multiple perspectives allows for a more complete portrayal of the issues surrounding instructional technology use in the classroom.

## **References**

Spotts, T. H., Bowman, M. A., & Mertz, C. (1997). Gender use of instructional technologies: A study of university faculty [Electronic version]. *Higher Education, 34*, 421-436.

## APPENDIX A

### Focus Group Questioning Route

- Opening 1. Tell us your first name, what year you are in school, and your intended major.
- Introduction 2(a). What comes to mind when you think of “Educational Technologies?”
- 2(b). On a typical day, please describe how your instructors use technology.
- Key 3. Now let’s reflect on what happens in class and how the instructor’s teaching approach and use of technology impacts what you do. Does the technology help you to visualize? Vocalize? Do you have printouts from the class web site with you while you are in class?
- Key 4. Do you find it helpful or distracting when the instructor provides many resources at one time—e.g., handouts, overheads, website,
- How is it helpful/distracting?
- Key 5. Thinking back over your own experience, was there a time that something went wrong with the technology? What was that experience like? How did the instructor handle the situation? How distracting was it to your learning?
- Key 6. Now let’s talk specifically about technology and how it affects your class work outside of the classroom. Can you describe this? Do you spend a lot of time in front of a computer screen on your course work? What functions are most frequent? How often do you need to be connected?
- Key 7. Can you say whether you are doing this out of class work at your residence? Or at a computer lab? Why one or the other?
- Key 8. Talk about a course with a good online component (i.e., activities, quiz, interact with fellow classmate or instructor). What factors made it good?
- Key 9. Please take a few moments to reflect on courses you have taken at the University of Illinois. Briefly talk about a good class you had or are currently taking and why it was good. You can also mention a class that was not so good and why that was the case.
- Key 10. Please talk about your class attendance. Consider those classes where attendance is fun and those where you feel obligated attending. Are there courses that you are comfortable skipping? Why?
- Key 11. Please talk about those things you do while in class. Do you take a lot of notes? Ask a lot of questions? Spend most of your time listening?

Key

12. Now let's do some role playing. Imagine you are the Campus CIO who is investing educational technology. Where should more resources be put? Where might the campus reduce expenditure without any negative effect on the learning?

Ending

12. In order for us to better understand how you perceive technology use or role in teaching and learning, do you feel that there is anything that we have missed in today's discussion?