

## Use of Technology in the Classrooms and Computer Labs

Technology impacts all aspects of a college's learning environment, inside and outside the classroom. Some people say that the use of computers, the internet, online tutorials, computer simulations, etc., all enhances student learning. Technology in the classroom not only seems to enhance learning but also helps students explore and understand the world around them. Technological tools can also help instructors reinforce and explain complex topics. The College strives to provide faculty with technological equipment to enhance successful student learning. In Spring 2006, PCC's Campus Technology Committee conducted a technology survey of the College's students and faculty to: 1) evaluate the effectiveness of its technology and solicit comments on how it can improve; 2) identify the College's technology needs; and 3) set priorities for technology over the next three to five years. A total of 1,193 students, 194 contract faculty, and 126 hourly faculty completed the survey (The survey completed by classified staff and managers did not include the classroom questions reported in this Research Findings). The survey asked students and faculty questions about the use of technology in the classroom and computer labs. They were also asked to indicate how interested they were in using various new technologies. This issue presents a brief overview and highlights of the survey findings about the *use of technology in the classroom and computer labs*.

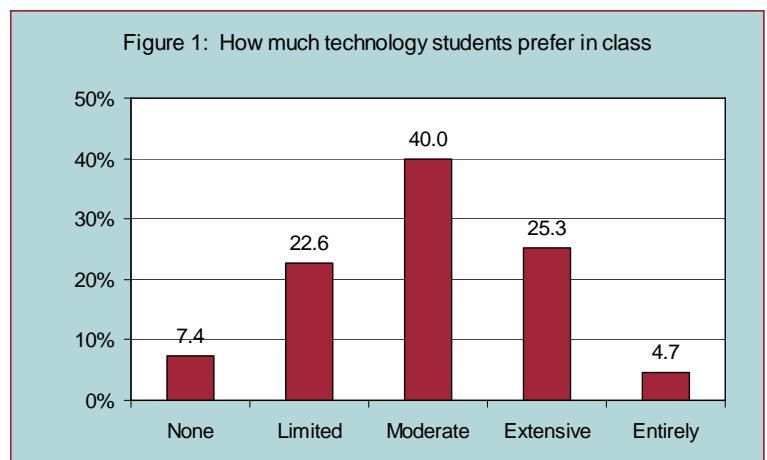
### Technology Preferences

Students were asked to indicate how much technology they prefer in their classes. Specifically, they were asked to select a statement from a list of six statements that best describes them. The statements were:

- ⇒ *I prefer taking classes that use **NO** technology features.*
- ⇒ *I prefer taking classes that use **LIMITED** technology features (e.g., email, limited use of instructor's website, etc.).*
- ⇒ *I prefer taking classes that use a **MODERATE** amount of technology features (e.g., email, some PowerPoint presentations, some online activities, etc.).*
- ⇒ *I prefer taking classes that use technology features **EXTENSIVELY** (e.g., email, class lecture notes online, computer activities, a lot of PowerPoint presentations, streaming video or audio, etc.).*
- ⇒ *I prefer taking classes that are delivered **ENTIRELY** online (no required face-to-face interactions with instructor).*

The findings are as follows (see Figure 1):

- Overall, three out of five students prefer taking classes with a moderate to an extensive amount of technology.
- One out of five students prefer taking classes with **limited** technology features.
- While **7.4%** of the students prefer taking classes that use no technology features, **4.7%** of the students prefer taking classes that are entirely online.



### Possible Action Implications for the College

- \* Students prefer taking classes with some technology features. The College may consider finding ways to help faculty integrate technology into their teaching. Perhaps, the instructional divisions can have professional workshops that provide faculty with effective strategies on how to integrate technology into their lesson plans.
- \* The finding that less than 5% of the students prefer taking classes that are entirely online needs to be taken into consideration as the College offers more online courses.

## Future of Technology at PCC

Students and faculty were asked to indicate, on a scale where “1 = Not at all, 2 = A Little, 3 = Somewhat, 4 = A Lot, and 5 = Very Much,” how interested they were in using various new technologies. Overall, contract and hourly faculty are in agreement in their rank ordering interests while students’ interests differ slightly from those of faculty. Students are more interested in technologies that would help them give feedback to and receive feedback from their instructors, whereas faculty are more interested in technologies that would help them supplement instruction. The findings are as follows (see Table 1):

- Students are most interested in online evaluation of courses and online computer grade books.
- Contract and hourly faculty are most interested in the use of presentation software for their lectures, computer based simulations, and self-paced computer learning tutorials.
- Students and faculty are in agreement about being the least interested in virtual hours and interactive video conferences.
- Students and hourly faculty are only somewhat interested in online portfolios and online discussions.
- Contract and hourly faculty are in agreement about being somewhat interested in online surveys to measure Student Learning Outcomes and specific course software or courseware.

**Table 1. Student and Faculty Interests in Using Technologies at PCC**

	Students	Contract Faculty	Hourly Faculty
<i>Average Response</i>			
Online evaluation of courses	3.52	3.15	3.37
Online computer grade books (instructors communicate expectations and performance throughout the semester via the web)	3.47	3.27	3.48
Use of presentation software for lectures (e.g., PowerPoint)	3.27	3.69	3.82
Computer-based simulations or exercises (use of computer text, audio, and animation to teach/learn complex concepts)	3.25	3.49	3.56
Online assignments, quizzes, and exams	3.22	3.38	3.50
Self-paced computer learning tutorials for students	3.19	3.48	3.66
Online portfolios (collection of student work that exhibits the students' efforts, progress, and achievements)	3.17	2.70	3.04
Online student discussions (for tutoring, group work, etc.)	3.01	2.81	3.03
Online virtual office hours with instructor where you listen to each other via speakers, ask questions with microphone, and view instructor's explanation	2.76	2.45	2.76
Interactive video conferencing	2.71	2.47	2.72
Specific course software or courseware (e.g., architecture sign, etc.)	N/A	3.12	3.10
Online surveys to measure student learning outcomes	N/A	3.11	3.37

## Possible Action Implications or Questions for the College

- \* Students are interested in online computer grade books. What would the College need to do to make this happen?
- \* Given that students are interested in having online evaluation of courses, the Academic Senate may want to consider discussing the possibility of making online evaluation of courses available to students.
- \* Given that faculty want to use presentation software for lectures, the College may consider offering more training on how to use such software.

## Classroom Technology

From a list of 14 types of technological equipment, faculty were asked to indicate if they used each item in the classroom within the last year and indicate their degree of satisfaction on a scale where “1= Very Dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, and 5 = Very Satisfied.” Overall, hourly faculty report lower levels of usage and higher levels of satisfaction with the technological tools than contract faculty.

Below are the findings as to which technology faculty **use** in the classroom (see Table 2):

- The top three items contract faculty **use** in the classroom are VCR (**72.8%**), followed by a computer desktop/laptop (**58.8%**), and internet access (**56.7%**).
- The top three items hourly faculty **use** in the classroom are VCR (**54.1%**), followed by a TV (**38.7%**), and internet access (**38.2%**).
- The three least used items by contract faculty are slide projector (**11.9%**), Smart Board (**14.0%**), and Flatbed scanner (**14.6%**).
- The three least used items by hourly faculty are Smart Classroom (**2.8%**), Smart Board (**3.7%**), and opaque/document scan overhead projector (**8.3%**).

**Table 2. Percentages of Technology Used in the Classroom**

	Contract Faculty	Hourly Faculty
<i>Percentages</i>		
VCR	72.8	54.1
Computer desktop/laptop	58.8	36.0
Internet access	56.7	38.2
DVD Player	55.7	38.0
TV	51.1	38.7
Overhead Transparency Projector	47.5	35.5
LCD Projector	47.3	32.7
Sound System	34.8	20.6
Smart Classroom	30.2	2.8
Smart Cart	19.4	10.2
Opaque/Document Scan Overhead Projector	16.2	8.3
Flatbed Scanner	14.6	11.2
Smart Board	14.0	3.7

Below are the findings as to how satisfied faculty are with the technological tools they use (see Table 3):

- Contract faculty are most satisfied with the opaque/document scan overhead projector, followed by the LCD projector, and DVD player.
- Hourly faculty are most satisfied with the Smart Board, followed by the LCD projector, and computer desktop/laptop.
- Contract faculty and hourly are least satisfied with the Smart Cart.

**Table 3. Average Satisfaction with Classroom Technology**

	Contract Faculty	Hourly Faculty
<i>Average Response</i>		
Opaque/Document Scan Overhead Projector	4.12	3.89
LCD Projector	4.07	4.24
DVD Player	4.02	3.87
VCR	3.86	4.04
Slide Projector	3.85	4.10
Internet access	3.84	4.08
Computer desktop/laptop	3.80	4.24
Smart Board	3.78	4.50
Sound System	3.77	3.90
TV	3.74	3.92
Overhead Transparency Projector	3.68	3.65
Smart Classroom	3.67	4.00
Flatbed Scanner	3.67	4.00
Smart Cart	3.43	3.50

## Possible Action Implications or Questions for the College

- \* Would more faculty use Smart Classrooms if the College had more classrooms or would the Smart Classrooms be unused? Does the College provide training to faculty who want to use the Smart Classrooms?
- \* Faculty seem to use technological tools in which other people have likely created the content such as VCRs, DVDs, TVs, etc. Do faculty want to create their own content? In which case, the College may consider offering faculty training on how to use technology to create their own content.
- \* Further questioning is necessary to determine if the apparent limited use of Smart Carts, Smart Boards, and Smart Classrooms is due to availability, knowledge of how to use them, or interest in using them.

## Use of Computer Labs

Students and faculty were asked to indicate: whether they had used at least one computer lab within the last year; the lab they most frequently used; and how satisfied, on a scale where 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, and 5 = Very Satisfied, they were with the software, hardware, internet access, technical assistance, and number of computers in the lab. A computer lab was defined as having multiple computer workstations designed to provide instruction and/or hands-on-experiences. The findings are as follows:

- **75.2%** of the students report using at least one computer lab.
- **52.9%** of the contract faculty and **44.8%** of the hourly faculty report using at least one computer lab.
- Students most frequently report using the computer labs in the Shatford Library. Both contract and hourly faculty most frequently report using the computer labs in the D-building.
- Students and hourly faculty are most satisfied with the software in the computer labs. Contract faculty are most satisfied with the hardware in the labs (see Table 4).
- Students and contract faculty are in agreement about how satisfied they are with the internet access, giving it their second highest rating.
- Students and hourly faculty are least satisfied with the number of computers, giving it their lowest average rating. Even though the number of computers is rated the lowest, the rating is still above neutral.
- Students and hourly faculty are in agreement about how satisfied they are with the technical assistance with computer hardware, software, etc., in the labs.

**Table 4. Satisfaction with Technology in Computer Labs**

	Students	Contract Faculty	Hourly Faculty
<i>Average Response</i>			
Software	4.05	3.99	4.12
Internet access	3.98	4.10	3.84
Technical assistance with computer hardware, software, etc.	3.94	3.89	3.92
Hardware (e.g., memory, speed, etc.)	3.88	4.12	3.83
Number of computers	3.77	3.82	3.83

## Possible Action Implications or Questions for the College

- \* If 75% of the students and 53% of the faculty have used a computer lab, does the College need more labs or does it have enough?
- \* Is it better to have a few large computer labs or many labs with fewer computers?
- \* How do the functions and uses differ between the Shatford Library which is used by students and the D-building which is used by faculty?