

## EXECUTIVE SUMMARY SPRING 2002 FACULTY TECHNOLOGY SURVEY

### Description of Survey

Between January and June 2002 researchers at the Social and Behavioral Research Institute at CSU, San Marcos (SBRI), conducted a telephone survey of a representative sample of California State University full-time faculty members. This survey is the second in a series of biennial studies undertaken to provide information about CSU faculty access to, use of and satisfaction with computing and network resources and services considered to be within the scope of the technology infrastructure as defined in the CSU Integrated Technology Strategy (ITS).

Both the initial survey, administered in fall 2000, and the spring 2002 survey asked faculty about their: 1) views on the importance of information technology; 2) perceptions of the availability to them of computing and network technologies and services; 3) use of these resources; and, 4) satisfaction with the quantity and quality of the technology and support available to them. The results of the 2000 survey provided baseline information. Comparisons of the results of the 2002 survey with the baseline data permit identification of changes in CSU faculty use of, opinions about and satisfaction with technology resources that may have occurred during the first two years of ITS implementation.

### General Findings

The Faculty Technology Survey covers three broad areas: the importance of information technology; its availability and use; and, satisfaction with resources and services.

#### Importance

- ◆ CSU faculty believe computing and network resources are very important for carrying out tasks related to their work, and they consider financing of the timely replacement of hardware and software to be very important.
- ◆ Faculty believe that it is important for students to have unlimited access to a computer and to the campus network, and to technology training opportunities. Requiring students to acquire information competence is also viewed as important.
- ◆ Most faculty are aware of campus efforts to improve computing and network resources, and perceive these efforts to be somewhat helpful in improving their work conditions.
- ◆ Faculty regard as quite important campus support to integrate technology into instruction. They also believe it is quite important to have a formal policy regarding ownership of technology-mediated resources developed by faculty.
- ◆ Faculty generally do not consider it important to provide students any-time, any-place electronic access to instruction.

#### Use

- ◆ CSU faculty use a broad range of information technology applications, resources and support services in carrying out their instructional duties and other professional tasks. An astonishing 99.1 percent of all survey respondents say that they use a computer "almost daily". They rate themselves generally as quite knowledgeable in the use of the computer hardware and software they use in their own teaching and research activities.
- ◆ Almost all faculty have access to, and have received, technical support to solve problems with university-provided computers or software. Over one half report that they receive help from their own department.
- ◆ A majority of CSU faculty require students to use some form of information technology to complete assignments in courses they teach.

- ◆ Few faculty report that they teach classes in a distributed or distance learning mode (i.e., in a way that enables students to engage in instructional activities at times and locations other than at scheduled times and locations on campus).

#### Satisfaction

- ◆ Faculty report general satisfaction with the Internet access and with the computer hardware, software available to them on their campuses.
- ◆ Faculty are fairly satisfied with the quality, quantity and ease of access to electronic library resources. They are also fairly satisfied with the pedagogical effectiveness of requiring students to use the Internet, e-mail and computer laboratories.
- ◆ Satisfaction with the help faculty received to install and upgrade computers and to resolve problems requiring technical assistance was moderate.
- ◆ Satisfaction with online access to student records and with videoconferencing capabilities was quite low.

#### Changes Since the 2000 Faculty Survey

The interval between the 2000 and the 2002 faculty surveys were about 15 months. In the absence of dramatic changes in the make up faculty or in the technology available to them, one would expect the results of the 2002 survey to show little change from the earlier survey. While the magnitude of change was generally small, statistically significant change can be observed in faculty responses to well over half of the items in the survey.

- ◆ Overall, responses to the 2002 faculty technology survey show a positive trend. The ratio of positive change—i.e., in the direction supportive of the importance and use of, or satisfaction with, information technology resources and services—to negative change is approximately 2 to 1. Of the 45 questions asking faculty to give a rating on a scale ranging from 0 to 10 where 0 is the most negative indicator and 10 the most positive, the means scores for 29 items in the 2002 survey are higher than the mean scores for these items in the 2000 survey. For 16 questions the mean scores were lower. For the 40 questions calling for a “yes” or “no” response in both surveys, positive change occurs in 27 items, negative change in 12, and no change in 1.
- ◆ The most notable difference evident in a comparison of the results of the 2002 survey with the survey done in 2000 is the increase in the requirement for students to use information technology to carry out work associated with their classes, and in the number and variety of the technologies and applications employed. Positive increases in the required use of information technology are in the range of 10 to 20 percentage points on about a third of the questions related to instructional practices.
- ◆ Faculty report modest increases in the level of satisfaction with computing and technology resources and services available to them, and with the pedagogical effectiveness of the required use of technology and electronic information resources. Decreases in satisfaction are apparent with online access to student record information and with the use of videoconferencing.
- ◆ A sharp decline (over 10 percentage points) in the use of computer-based technology training resources occurred, attributable largely to the mid-year expiration of a systemwide enterprise agreement that provided access to a library of 650 training modules on each campus.
- ◆ The perceived importance of providing students with electronic access to course instruction at any time and place decreased below its already low ranking on the cusp between important and unimportant.

## SUMMARY OF SURVEY RESULTS

### Survey Sample

A total of 3,290 full-time faculty from 21 CSU campuses were interviewed. The Chancellor's Office was not included in the survey because faculty are not employed there on a full-time basis. The California Maritime Academy and CSU Channel Islands were also excluded because the number of faculty on these campuses is insufficient to provide statistically reliable information. The number of individuals interviewed at each university varied from 32 at the smallest campus to 294 at the largest campus, numbers proportional to the size of each campus's faculty relative to total number of faculty in the CSU system.

Survey participants were selected to reflect the distribution of faculty on their respective campuses by rank and disciplinary group. The faculty sample interviewed by SBRI approximates almost exactly the system profile for the target population as noted below. (Source of CSU data: Human Resources, CSU Office of the Chancellor).

Rank

Rank	Full-time Faculty (Fall 2001)	Survey Participants (Fall 2002)	Over/Under Representation
Professor	49.8%	52.7%	+2.9%
Associate Professor	15.7%	15.9%	+0.2%
Assistant Professor	19.6%	20.4%	+0.8%
Lecturer	14.8%	11.0%	-3.8%
Tenured/Tenure Track	85.2%	97.6%	+12.4%

Source: Fall 2001 Profile of CSU Employees

Disciplinary Group

Disciplinary Group	Full-time Faculty (Fall 2001)	Survey Participants (Fall 2002)	Over/Under Representation
Fine Arts	7.2%	7.6%	+0.4%
Business	10.1%	10.7%	+0.7%
Education	13.8%	14.2%	+0.4%
Engineering & Computer Sc.	6.9%	7.5%	+0.6%
Humanities	10.7%	11.8%	+1.1%
Natural Sciences & Math	14.5%	15.2%	+0.7%
Behavioral & Social Sciences	20.8%	25.1%	+4.3%
Professional & Technical	9.7%	7.9%	-1.8%
Other (not identified)	6.3%	0%	-6.3%

Source: Human Resources Information Support & Analysis

Age and Gender

Category	Full-time Faculty (Fall 2001)	Survey Participants (Fall 2002)	Over/Under Representation
Average Age	50.6	51.0	+0.4
Male	61.1%	62.0%	+0.9%
Female	38.9%	38.0%	-0.9%

Source: Fall 2001 Profile of CSU Employees

Ethnicity

Ethnic Group	Full-time Faculty (Fall 2001)	Survey Participants (Fall 2002)	Over/Under Representation
African American	3.8%	2.8%	-1.1%
Asian & Asian American, Filipino, Pacific Islanders	12.4%	10.4%	-2.0%
Latino/Hispanic	7.2%	7.0%	-0.3%
American Indian (Other Non White)	0.6%	1.9%	+1.3%
White	76.0%	+77.9%	+2.0%

Source: Fall 2001 Profile of CSU Employees

**Survey Design**

To measure the level of faculty access to technology resources and support, interviewers asked participants yes/no questions about availability and/or use of specific computing and network technologies and services. Respondents who themselves had used the resources or services in question were then asked to rate their satisfaction with each using a zero-to-ten scale. Faculty were also asked for their opinion about general issues related to the importance of information technology to their own work at the university.

**Survey Results**

Almost all of the faculty who were interviewed responded to most of the questions. Close to 100 percent answered questions asking for opinions or practices; responses to questions about use of resources or services ranged between 83 percent and 99percent. The percentage of replies to questions about satisfaction varied according to personal experience with the resource or service in question. The number of faculty who answered each question is shown in the Appendix.

Faculty satisfaction with specific technology resources or support services is reported as mean scores for ratings on an eleven-point scale (0 – 10). Because faculty opinions tend to very diverse, it is important to consider variance from the mean when interpreting results of the satisfaction ratings. As arithmetic averages, mean scores do not convey a sense of the extent to which the opinion they represent is shared by all respondents. For example, a given mean score could be identical for an opinion that is extremely polarized (with approximately even numbers of negative and positive ratings), skewed (by a concentration of ratings on one side of the mean offset by a distribution of the majority over a broader range on the other side), or highly consensual (with all but a few ratings at or very near the mean). Accordingly, in seeking to understand how CSU faculty feel about specific items in the survey, both the mean score and the degree of variance from the mean (indicated by the standard deviation<sup>1</sup>) must be taken into account.

Faculty are a highly diverse group of professionals. The demands of their disciplinary fields and their own areas of specialization tend to influence their information technology needs and preferences. Variations in patterns of responses to the technology survey by sub-group are, therefore, predictable. Following is a summary of the statistically significant differences observed in the results for the faculty technology survey. Because the number of respondents in sub-groups is much smaller than the overall faculty survey population, responses from the 2000 survey and the 2002 survey have been combined in the analysis where questions were identical. The combined sample increases the statistical confidence in the findings concerning sub-group variations. The combined sample means and standard deviations and percentages are reported in italics. A detailed analysis of the survey results is included in the survey report posted on the Chancellor’s Office website: [http://its.calstate.edu/documents/Data\\_Collection/III\\_Biennial\\_Surveys/III\\_Biennial\\_Surveys.shtml](http://its.calstate.edu/documents/Data_Collection/III_Biennial_Surveys/III_Biennial_Surveys.shtml).

<sup>1</sup> The larger the standard deviation, the greater the dispersion around the mean; i.e., the less the degree of consensus among those rating the item. Approximately two thirds of all responses cluster within the range above and below the mean indicated by one standard deviation (SD); e.g., a mean score of 7.8 with an SD of 1.32 means that 66.6 percent of all responses fall between 6.48 and 9.12.

What are the issues?

- ◆ There is strong consensus among faculty regarding the central importance of information technology for the university. Faculty agree strongly on the importance of computing and network resources for accomplishing their work at the university (mean 8.91/SD 1.66 with 99.7 percent responding). Perceptions of importance varied somewhat by rank and by discipline. Assistant and associate professors rated the importance of technology about a quarter of a point higher (on the 11-point scale) than professors; ratings of faculty in the areas of engineering and computer science, and professional or technical fields averaged a third to three quarters of a point higher than those of their colleagues in the humanities and the arts.
- ◆ Unlimited student access to the campus network and to a computer ranked next in order of importance for faculty (mean 8.40/SD 2.12 and 8.24/SD 2.24 with 98.4 percent responding). The importance of requiring all undergraduate students to gain competency in the use of information resources was also rating quite highly (mean 8.12/SD 2.18 with 98.3 percent responding).
- ◆ Consistent with the importance accorded to computing and network resources, faculty rated financing of the timely replacement of these resources as a high priority (mean 8.47/SD 1.92 with 94.5 percent responding).
- ◆ Access to campus-provided programs and activities to help faculty improve their skills in the use of computing and network resources also ranked as very important (mean 8.24/SD 2.27 with 96.4 percent responding). Perceptions of importance varied by rank and by discipline. Faculty in education and professional or technical fields attributed greater importance to training opportunities than did other faculty constituencies; generally, faculty with the greatest seniority (professors) and with the least security (lecturers) rated training opportunities as more important than faculty at the assistant and associate level. Generally, constituency means scores for the importance of training corresponded to group perceptions of their own knowledge in the use of computers (overall mean 7.20/SD 1.85 with 99.7 percent responding).
- ◆ Campus support to help integrate technology into the curriculum was viewed as important (mean 8.18/SD 2.01 with 99.5 percent responding). Faculty also believe it is important for campuses to provide incentives to encourage their participation in developing technology-mediated instructional resources (mean 8.03/SD 2.30 with 99.1 percent responding), and to have in place policies regarding ownership of materials they produce (mean 8.11/SD 2.38 with 95.4 percent responding). These ratings varied only somewhat by rank and discipline. Faculty from education and professional and technical fields tended to view incentives as more important than their colleagues.
- ◆ The importance of having a formal plan for integrating technology into the curriculum was generally rated fairly high (mean 7.43/SD 2.64 with 98.7 percent responding) but differed markedly by discipline. Faculty in the fields of education, engineering and computer science accorded much greater importance to this (almost 1.5 points on the 11-point scale) than did their colleagues in the humanities and social/behavioral sciences.
- ◆ The ratings suggest that departments are not doing particularly well in preparing students for the technology skills they will need after graduation: (mean 6.61/SD 2.16 with 95.4 percent responding, where 10 equals "extremely well" and 0 equals "not at all well"). Faculty in engineering and computer science felt that their departments were doing somewhat better than others (*mean 7.80/SD 1.62*).
- ◆ Most faculty (85.3 percent) are aware of current CSU efforts to improve computing and network resources on their campuses. A majority, however, said that these efforts have improved their own working conditions only modestly (mean 6.06/SD 2.41 with 80.6 percent responding, where 10 equals "extremely improved" and 0 = "no improvement at all").
- ◆ Providing students any-time, any-place, electronic access to course instruction ranked lowest in importance for faculty (mean 5.07/SD 3.04 with 96.2 percent responding). Perceptions of importance corresponded to slight differences in rank, with professors giving the lowest (*mean 5.28/SD 3.07*) and lecturers the highest (mean 5.88/SD 3.00) ratings. Differences among disciplinary constituencies were more pronounced, with a 1.5 point difference (on the 11-point scale) separating the highest mean score (*6.21/SD 2.87*) from business faculty from the lowest (*4.70/SD 3.00*) from science and math faculty).

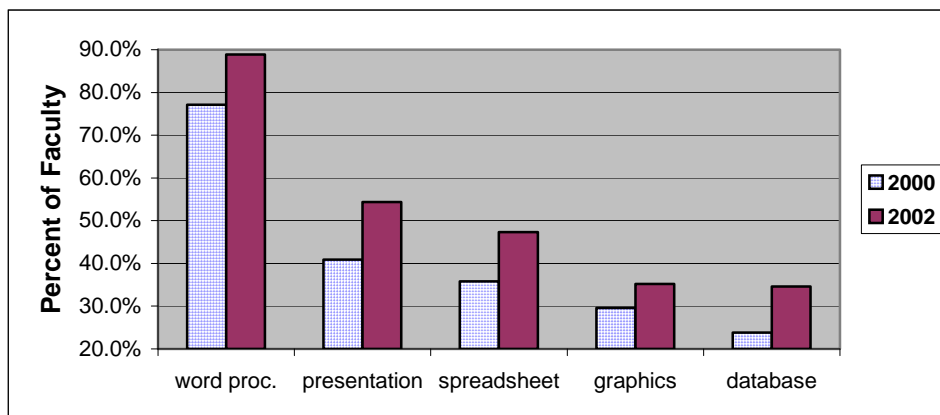
### Changes Since the 2000 Faculty Survey

- ◆ Importance ratings in the 2002 survey differed little from the ratings in 2000. Statistically significant change was measured in only five of the sixteen questions asking for opinion; i.e., changes in mean scores for the remaining items were too small to indicate a shift in faculty perception.
- ◆ Faculty rated the importance of computer and network resources somewhat higher in 2002 than in 2000. Importance ratings decreased somewhat over the same period for access to campus-sponsored basic computer skills training, and for requiring students to be information competent. The most significant change occurred in the perceived importance of students having electronic access to any-time, any-place instruction: an almost three-quarter point drop from the 2000 survey brought the mean score for this question to the threshold between “important” and “unimportant.”

## Use of Technology in Teaching

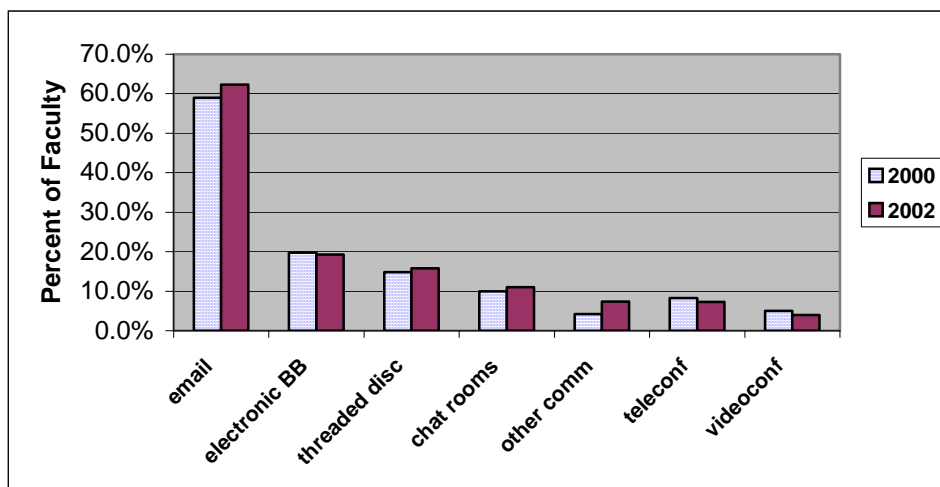
Faculty make extensive use of information technology in their teaching. The charts below show the levels of use of specific technologies and applications in instruction as reported in the 2000 survey and in the current survey.

### Software Applications Required of Students to Complete Course Assignments



(83.2 percent of the 3290 faculty interviewed in 2002 responded to this question.)

### Communications Tools Students are Required to Use



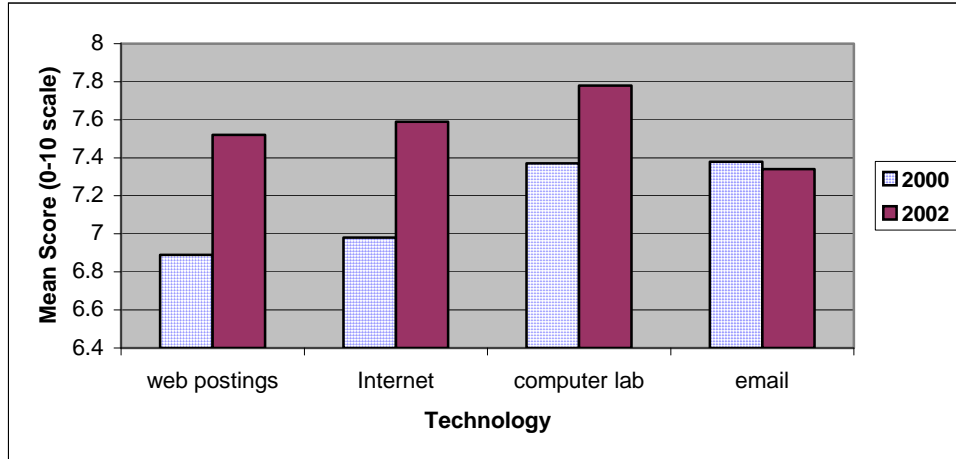
(98.1 percent of the 3290 faculty interviewed in 2002 responded to this question.)

## Satisfaction with Instructional Use of Technology

Faculty were asked to rate their satisfaction with the information technology resources and services they themselves had used in the past two years.

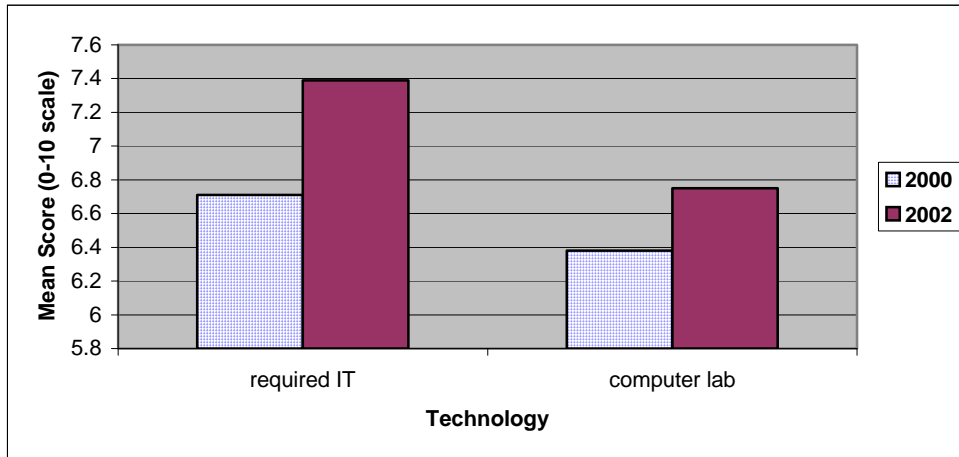
### Instructional Use of Technology

#### Satisfaction with Pedagogical Effectiveness



(Of the 3290 faculty interviewed in 2002, 53.3 percent, 68.6 percent, 48.6 percent and 54.7 percent respectively responded to these questions.)

#### Satisfaction with Technical Support



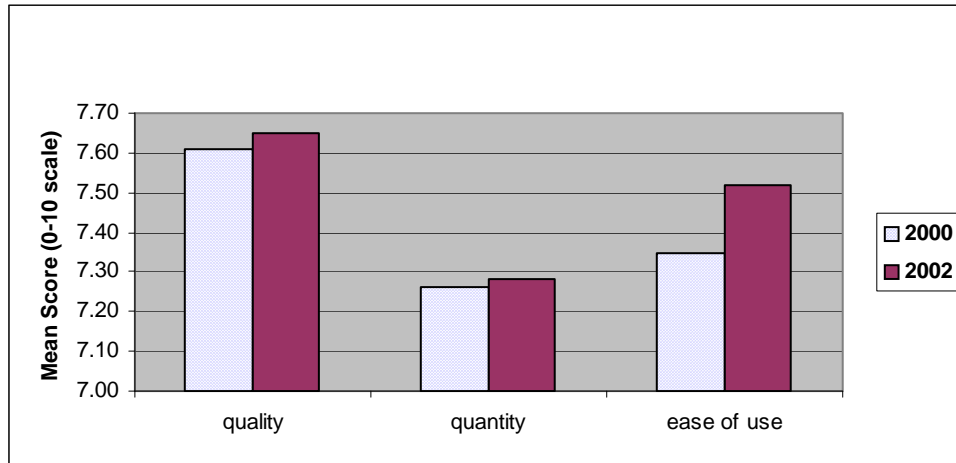
(Of the 3290 faculty interviewed in 2002, 30.8 percent and 47.8 percent respectively responded to these questions.)

## Use and Satisfaction with Information Technology Resources and Services

### Online Information Resources

Most faculty (86.2 percent) said that they use electronic information resources (e.g., online interlibrary loan, online database searches, online catalogs). Measures of satisfaction with these resources are profiled below.

### Satisfaction with Online Information Resources



(Of the 3290 faculty interviewed in 2002, 85.3 percent, 82.7 percent and 84.2 percent respectively responded to these questions.)

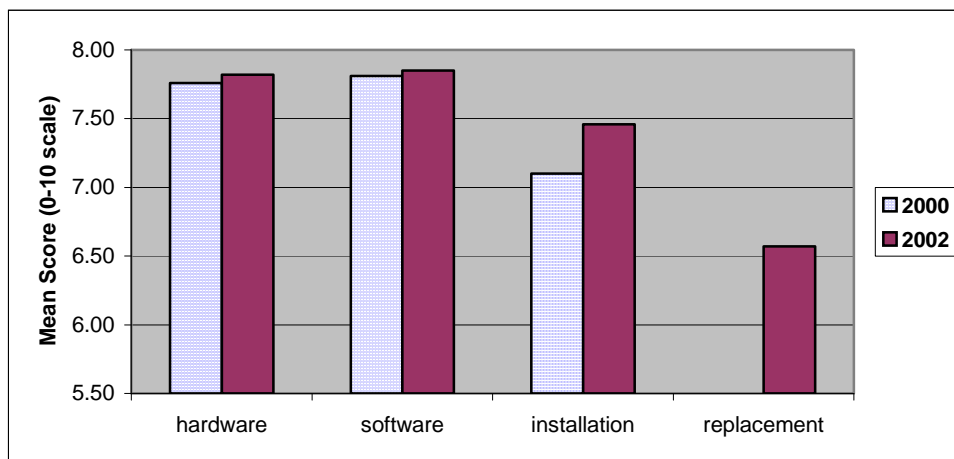
### Administrative Information System

About half of the faculty (52.7percent with 99.3 percent responding) said they had used a campus administrative information system to access student records for purposes of academic advisement. Satisfaction with online access to student record information was moderate (mean 6.35/SD 2.59 with 52 percent responding), a decrease in satisfaction of about a quarter of a point (on the 11-point scale) from 2000.

### Workstation Hardware and Software

Almost all faculty have access to a university-provided computer workstation (97.5 percent with 99.7 percent responding) and to the software applications (93.6 percent with 96.1 percent responding) that they need to complete their work. The campus also provides assistance to almost all faculty for setting up and maintaining their workstations (97.8 percent of 96.5 percent responding). Almost all faculty report having received help with the installation and upgrading of their workstations (96 percent of 94.3 percent responding). The level of faculty satisfaction with their workstations is fairly high.

### Satisfaction with Workstation

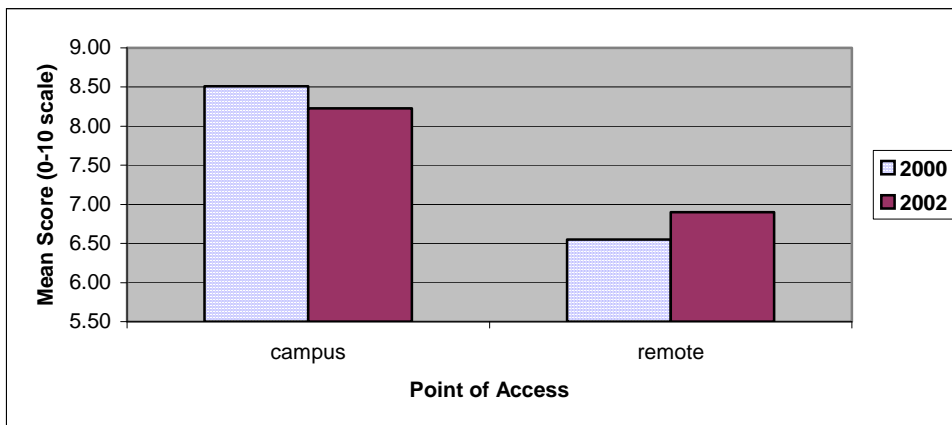


(Of the 3290 faculty interviewed in 2002, 96.9 percent, 89.4 percent, 90.3 percent and 92.6 percent respectively responded to these questions. Faculty were not asked to rate their satisfaction with how often their workstations were upgraded or replaced in the 2000 survey.)

### Network Access

Essentially all faculty (98.9 percent with 99.8 percent responding) use the campus computer network to connect with the Internet. A majority of faculty (79.4 percent with 99.7 percent responding) also connect to the campus computer network from off campus using a modem (including DSL and cable), either directly or via an Internet provider service. A slight decline in the level of satisfaction with campus access was paralleled by a slight increase in remote access.

#### Satisfaction with Access to the Campus Network

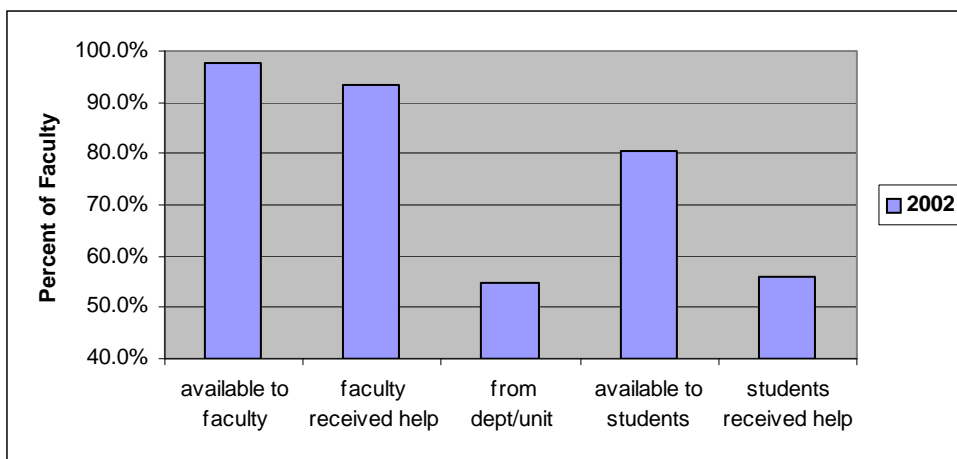


(Of the 3290 faculty interviewed in 2002, 98.4 percent and 78.5 percent respectively responded to these questions.)

### Technical Support

As shown below, almost all faculty have access to and have received technical assistance with their university-provided computing equipment.

#### Availability and Use of Technical Support Services (2002 Survey)



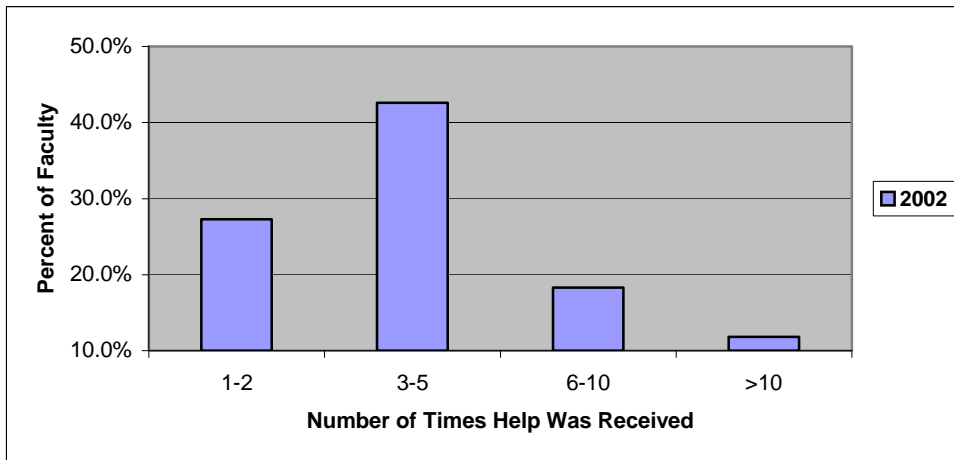
(Of the 3290 faculty interviewed in 2002, 96.5 percent, 94.3 percent, 87.2 percent, 73.3 percent and 58.7 percent respectively responded to these questions. These questions were not asked in comparable form in the 2000 survey.)

To understand the value of support services, participants in the 2002 survey were asked how reliant they were on assistance from technical support personnel to solve computer-related problems. On the 11-point scale where 10 equals "completely reliant" and 0 equals "not at all reliant," the mean score for all faculty was 6.55 (with 93.9 percent responding), indicating overall a moderate level of dependence on others for technical help. Significant differences in reliance exist among groups of faculty, however. Generally, the younger the faculty, the less reliant they say they are on outside assistance (mean scores ranging from 5.83 for assistant professors to 6.93 for professors). Degree of

reliance also varied by disciplinary group. Least dependent were science and math faculty (mean 5.93/SD 2.83); humanities faculty reported greater reliance (mean 7.02/SD 2.68). Over one half of the faculty (58.8 percent with 87.2 percent responding) report that they received help from someone (an employee or colleague) in their own department or organizational unit.

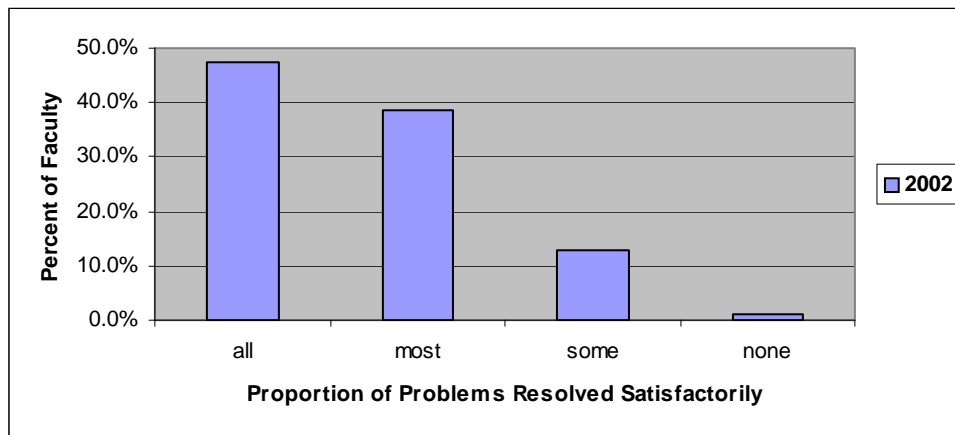
As shown in the following charts, over half of the faculty report having received technical help several times over the past two years. In the large majority of the cases, the problem was resolved satisfactorily.

**Frequency of Technical Assistance (2002 Survey)**



(88 percent of the faculty interviewed in 2002 responded to this question. These questions were not asked in the 2000 survey.)

**Effectiveness of Technical Assistance**



(87.9 percent of the faculty interviewed in 2002 responded to this question.)

Faculty are moderately satisfied with the time it took technical support personnel to resolve problems they experienced with university-provided computers (mean 7.13/SD 2.46 with 86.8 percent responding).

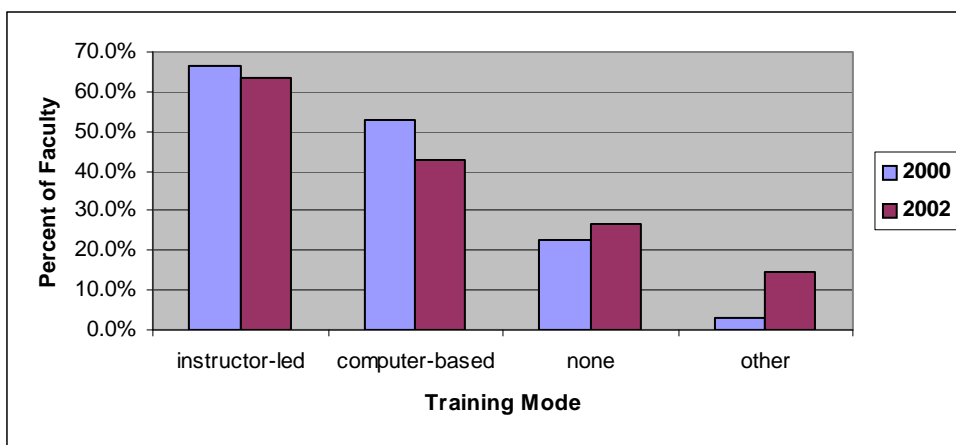
## Training

Faculty rate themselves as quite knowledgeable in the use of the computer hardware and software they use in their teaching and research activities (mean 7.20/SD 1.85). While there are differences between groups of faculty based on rank and discipline, these differences are not as pronounced as one might assume. Less than .4 of a point (on the 11-point scale) separates the averages by rank at either extreme. The range is greater by disciplinary field, however,

where the average mean scores of the extremes diverge by 1.3 points. As one would expect, engineering and computer science faculty express a high degree of knowledge (*mean 8.22/SD 1.37*). Humanities faculty fall at the opposite end of the continuum (*mean 6.56/SD 1.95*).

Over one half of the faculty report that they participated in some form of technology training in the past two years. Participation rates varied by rank and by discipline. The more senior the faculty, the higher the rate of participation: professors averaged *68.1 percent versus 57.6 percent* for assistant professors with associates falling midway. Three quarters or more of the faculty in professional and technical fields (*78.0 percent*), and in education took part in training activities and programs compared with *51 percent* of science and math faculty and *57.3 percent* of engineering faculty. (Note the correspondence of training participation rates with the levels of reliance on outside technical support described above: not surprisingly, faculty most in need of technical assistance appear to engage in more training than faculty who are less dependent on it.

### Participation in Technology Training



(97.2 percent of the 3290 faculty interviewed in 2002 responded to this question.)

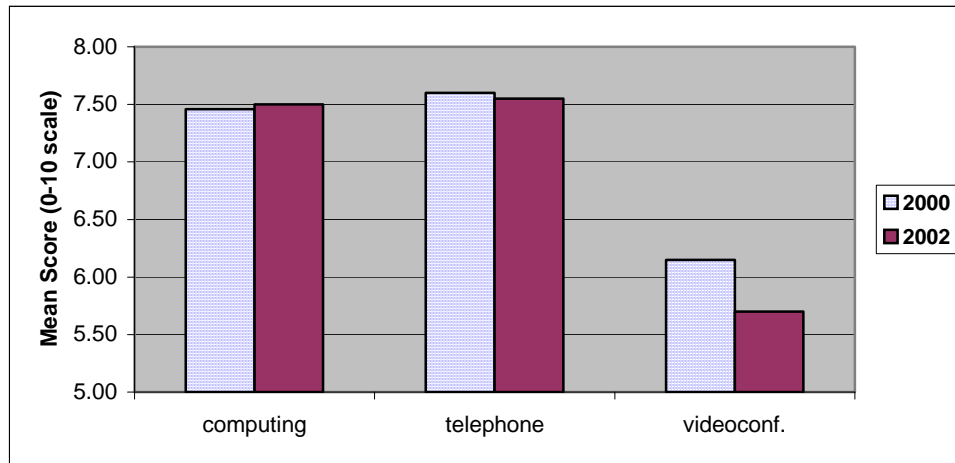
The 10.2 percent decrease in the use of computer-based training resources is attributable in good part to the expiration of a systemwide agreement that provided access to 650 training courses to faculty, staff and students on all CSU campuses. While some campuses elected to purchase continuing computer-based training resources, other campuses did not. The sharp increase in use of “other” training resources probably reflects the redirection of faculty to alternative training options and materials.

Faculty expressed moderate satisfaction with campus-provided training activities or programs (*mean 7.12/DS 2.15* with 68.6 percent participating). The level of satisfaction did not change significantly from the 2000 survey.

### General Satisfaction with Equipment

Faculty satisfaction with the condition and capabilities of the computing and telephone equipment available to them is moderately high. The videoconferencing equipment, used by a much smaller number of faculty, is rated as only marginally satisfactory. While the level of satisfaction with computing and telephone equipment remained essentially unchanged from 2000 to 2002, satisfaction with videoconferencing equipment fell by almost one half of a point (on the 11-point scale).

### General Satisfaction with Technology Equipment



(96.3 percent of the 3290 faculty interviewed in 2002 responded to this question.)

# Spring 2002 Faculty Technology Survey Responses

Item ID	Question	Number	% of All	SD	Mean	Signif.†	Yes (%)	Change	No(%)	Change
<b>Global</b>										
<b>General</b>										
QGLOB2	Importance of computing/network resources for own work	3282 3141	99.7% 99.7%	1.66 1.69	8.91 8.77	<u>0.14</u>	***			
QGLOB3	Satisfaction with computing and technology resources	3273 3133	99.4% 99.5%	1.93 1.99	7.02 6.85	<u>0.17</u>	***			
QGLOB4	Aware of efforts to improve computing/network resources	3265 3097	99.2% 98.3%				***	85.3% 89.0%	<u>-3.7%</u>	14.7% 11.0%
QGLOB5	How much have these efforts improved conditions for you	2653 2632	80.6% 83.6%	2.41 2.27	6.06 6.17	<u>-0.11</u>	ns			
Q4A9	Knowledge of computer hardware & software important to own work	3282 3139	99.7% 99.7%	1.85 1.87	7.20 7.23	<u>-0.03</u>	ns			
Q4B5C	Importance of financing timely replacement of hardware & software	3110 3110	94.5% 98.7%	1.92 1.92	8.47 8.47	<u>0.00</u>	ns			
QUSE1	How often do you use computer for any purpose	3291	100.0%							
	almost daily	3261	99.1%							
	weekly	19	0.6%							
	monthly	5	0.2%							
	1x sem/qtr	1	0.0%							
	almost never	2	0.1%							
	never	3	0.1%							
<b>Classroom Use 1A</b>										
<b>General</b>										
Q1A0	N classes taught last 2 years (including current term)	3276 3137	99.5% 99.6%	5.76 6.31	11.57 11.97	<u>-0.40</u>	**			
Q1A1	N classes taught wholly/partially in distributed/distance learning mode	3220 3099	97.8% 98.4%	2.85 2.67	0.92 0.90	<u>0.02</u>	ns			
Q1A2X	N classes taught totally/completely in distr./dist. lrng. mode	587	17.8%	2.79	1.48	<u>1.48</u>				

†The relative significance of changes in responses between the 2000 survey and the 2002 survey is indicated by asterisks:

\* The probability that the observed change is attributable to substantive, not random, factors is from 95% to 98%;

\*\* The probability that the observed change is attributable to substantive, not random, factors is 99% or greater;

\*\*\* The chances that the observed change is due to random rather than substantive factors is 1 in 1,000 or less;

ns The change was not statistically significant.

Absence of an indication of significance means the 2000 survey did not include a comparable question, or that the number of responses was insufficient for statistical analysis.

<u>Item ID</u>	<u>Question</u>	<u>Number</u>	<u>% of All</u>	<u>SD</u>	<u>Mean</u>	<u>Change</u>	<u>Signif.†</u>	<u>Yes (%)</u>	<u>Change</u>	<u>No (%)</u>	<u>Change</u>
<b>Policy</b>											
Q1A3	Importance of having any time/place electronic access to instruction	3167 3037	96.2% 96.4%	3.04 3.03	5.07 5.80	-0.73	***				
Q1A8	How well does dept. prepare students for technology skills in field	3142 2976	95.4% 94.5%	2.16 2.19	6.61 6.53	0.08	ns				
Q1A9	Importance of departmental plan for integrating technology in curriculum	3249 3084	98.7% 97.9%	2.64 2.59	7.43 7.48	-0.05	ns				
Q1A10	Importance of requiring information competency of all undergraduates	3236 3088	98.3% 98.0%	2.18 2.19	8.12 8.26	-0.14	*				
Q1A11	Importance of students having unlimited access to a computer	3239 3059	98.4% 97.1%	2.24 2.26	8.24 8.32	-0.08	ns				
Q1A12	Importance of students having unlimited access to campus network	3244 3062	98.5% 97.2%	2.12 2.21	8.40 8.34	0.06	ns				
Q1A14	Importance of incentives for faculty to participate in development of tech-mediated resources	3264 3102	99.1% 98.5%	2.30 2.47	8.03 8.01	0.02	ns				
Q1A15	Importance of ownership policy for faculty developed web/tech-mediated resources	3142 3102	95.4% 98.5%	2.38 2.33	8.11 8.21	-0.10	ns				
Q14B5B	Importance of assisting faculty to integrate technology into instruction	3274 3090	99.5% 98.1%	2.01 2.05	8.18 8.24	-0.06	ns				
<b>Technologies</b>											
Q1A5_1	Required students to use computer, including CD-ROM	3229 3111	98.1% 98.8%				***	84.8% 64.0%	20.9% *	15.2% 36.0%	-20.9%
Q1A5_2	Required students to use campus computer network	3229 3111	98.1% 98.8%				ns	62.9% 63.7%	-0.7% *	37.1% 36.3%	0.7%
Q1A5_3	Required students to use World Wide Web or Internet	3229 3111	98.1% 98.8%				ns	74.1% 72.4%	1.7% *	25.9% 27.6%	-1.7%
Q1A5_4	Required students to use television	3229 3111	98.1% 98.8%				ns	30.0% 30.0%	-0.0% *	70.0% 70.0%	0.0%
Q1A5_6	Required students to use other technologies	3229 3111	98.1% 98.8%				***	14.7% 2.7%	12.0% *	85.3% 97.3%	-12.0%
Q1A5_7	Required students to use "none" (technologies)	3229 3111	98.1% 98.8%					0.0% 10.8%	-10.7% *	99.9% 89.2%	10.7%

<u>Item ID</u>	<u>Question</u>	<u>Number</u>	<u>% of All</u>	<u>SD</u>	<u>Mean</u>	<u>Change</u>	<u>Signif.t</u>	<u>Yes (%)</u>	<u>Change</u>	<u>No(%)</u>	<u>Change</u>
Q1C1	N classes last 2 years which required use of Internet	2731 3103	83.0% 98.5%	5.87 5.80	6.87 5.42	<u>1.45</u>	***				
Q1C123C	Satisfaction with tech support aspects of required student IT use	1015 2103	30.8% 66.8%	2.06 2.16	7.39 6.71	<u>0.68</u>					
Q1C1B	Satisfaction with use of Internet (pedagog. effectiveness)	2259 2171	68.6% 68.9%	1.85 1.84	7.59 6.98	<u>0.61</u>	***				
Q1C2	N classes last 2 years in which course materials posted on Web	2737 3101	83.1% 98.4%	5.80 5.52	4.91 3.93	<u>0.98</u>	***				
Q1C2B	Satisfaction with use of materials on Web (pedagog. effectiveness)	1754 1693	53.3% 53.7%	2.24 2.23	7.52 6.89	<u>0.63</u>	***				
Q1C3	N classes last 2 years which required use of E-Mail	2732 1577	83.0% 50.1%	6.05 5.67	5.53 4.02	<u>1.51</u>	***				
Q1C3B	Satisfaction with pedagog. effectiveness of E-Mail use	1801 1619	54.7% 51.4%	2.17 2.02	7.34 7.38	<u>-0.04</u>	ns				
Q1C4	N classes last 2 years conducted wholly/in part in computer lab	2732 3090	83.0% 98.1%	4.31 4.29	3.21 2.95	<u>0.26</u>	*				
Q1C4A	Satisfaction with tech support aspects of instruction in computer lab	1575 1708	47.8% 54.2%	2.44 2.50	6.75 6.38	<u>0.37</u>	***				
Q1C4B	Satisfaction with use of computer lab (pedagog. effectiveness)	1601 1691	48.6% 53.7%	1.82 2.02	7.78 7.37	<u>0.41</u>	***				
<b>Applications</b>											
Q1A4_1	Required students to use word processing programs	2739 3111	83.2% 98.8%				***	88.9% 77.1%	<u>11.8%</u>	* 22.9%	11.1% -11.8%
Q1A4_2	Required students to use spreadsheet programs	2739 3111	83.2% 98.8%				***	47.3% 35.8%	<u>11.5%</u>	* 64.2%	52.7% -11.5%
Q1A4_3	Required students to use database programs	2739 3111	83.2% 98.8%				***	34.6% 23.8%	<u>10.8%</u>	* 76.2%	65.4% -10.8%
Q1A4_4	Required students to use presentation programs	2739 3111	83.2% 98.8%				***	54.4% 40.9%	<u>13.5%</u>	* 59.1%	45.6% -13.5%
Q1A4_5	Required students to use graphics programs	2739 3111	83.2% 98.8%				***	35.2% 29.6%	<u>5.6%</u>	* 70.4%	64.8% -5.6%
<b>Communications Tools</b>											
Q1A6_1	Required students to use E-Mail (communications tools)	3229 3111	98.1% 98.8%					62.8% 59.0%	<u>3.8%</u>		37.2% 41.0%

<u>Item ID</u>	<u>Question</u>	<u>Number</u>	<u>% of All</u>	<u>SD</u>	<u>Mean</u>	<u>Change</u>	<u>Signif.†</u>	<u>Yes (%)</u>	<u>Change</u>	<u>No (%)</u>	<u>Change</u>
Q1A6_2	Required students to use chat rooms	3229 3111	98.1% 98.8%				ns	11.0% 10.0%	<u>1.0%</u>	89.0% 90.0%	<u>-1.0%</u>
Q1A6_3	Required students to use threaded discussions	3229 3111	98.1% 98.8%				ns	15.8% 14.8%	<u>1.0%</u>	84.2% 85.2%	<u>-1.0%</u>
Q1A6_4	Required students to use electronic bulleting boards	3229 3111	98.1% 98.8%				ns	19.3% 19.8%	<u>-0.6%</u>	80.7% 80.2%	<u>0.6%</u>
Q1A6_5	Required students to use video conferencing	3229 3111	98.1% 98.8%				ns	4.0% 5.0%	<u>-1.0%</u>	96.0% 95.0%	<u>1.0%</u>
Q1A6_6	Required students to use telephone conferencing	3229 3111	98.1% 98.8%				ns	7.3% 8.3%	<u>-1.0%</u>	92.7% 91.7%	<u>1.0%</u>
Q1A6_7	Required students to use other communications tools	3229 3111	98.1% 98.8%				***	7.4% 4.2%	<u>3.2%</u>	92.6% 95.8%	<u>-3.2%</u>
<b>Tech.-Mediated Resources</b>											
Q1A7_1	Required students to use electronic data repositories	2739 3111	83.2% 98.8%				ns	31.4% 29.9%	<u>1.5%</u>	68.6% 70.1%	<u>-1.5%</u>
Q1A7_2	Required students to use electronic library resources	2739 3111	83.2% 98.8%				***	64.8% 59.9%	<u>4.9%</u>	35.2% 40.1%	<u>-4.9%</u>
Q1A7_3	Required students to use computer-based instruction/tutorials	2739 3111	83.2% 98.8%				ns	29.9% 28.7%	<u>1.2%</u>	70.1% 71.3%	<u>-1.2%</u>
Q1A7_4	Required students to use computer-based simulations and/or animations	2739 3111	83.2% 98.8%				*	26.1% 23.8%	<u>2.3%</u>	73.9% 76.2%	<u>-2.3%</u>
Q1A7_5	Required students to use information websites	2739 3111	83.2% 98.8%				***	73.5% 60.3%	<u>13.3%</u> *	26.5% 39.7%	<u>-13.3%</u>
Q1A7_6	Required students to use streaming video presentations	2739 3111	83.2% 98.8%				***	14.5% 10.6%	<u>3.9%</u>	85.5% 89.4%	<u>-3.9%</u>
Q1A7_7	Required students to use specialized software applications	2739 3111	83.2% 98.8%				***	47.1% 38.3%	<u>8.8%</u> *	52.9% 61.7%	<u>-8.8%</u>
Q1A7_8	Required students to use project-/team-based activities employing IT	2739 3111	83.2% 98.8%				***	33.6% 27.4%	<u>6.2%</u> *	66.4% 72.6%	<u>-6.2%</u>
Q1A7_9	Required students to use other technology-mediated resources	2739 3111	83.2% 98.8%				***	5.3% 2.6%	<u>2.7%</u>	94.7% 97.4%	<u>-2.7%</u>
Q1A2P2	Proportion of classes taught wholly-completely in dist. lrng. mode	586	17.8%	0.23	0.13	<u>0.13</u>					

<u>Item ID</u>	<u>Question</u>	<u>Number</u>	<u>% of All</u>	<u>SD</u>	<u>Mean</u>	<u>Change</u>	<u>Signif.t</u>	<u>Yes (%)</u>	<u>Change</u>	<u>No (%)</u>	<u>Change</u>
Q1A2PA2	Proportion of dist. lrng. classes taught wholly-completely using dist. lrng. mode	583	17.7%	0.46	0.36	<u>0.36</u>					

### Online Info Resources 1D

Q11D1	Used electronic information resources	3279 3146	99.6% 99.9%					86.2% 90.0%	<u>-3.8%</u>	13.8% 10.0%	<u>3.8%</u>
Q1D1A	Satisfaction with quality of available electronic library resources	2807 2807	85.3% 89.1%	1.77 1.74	7.65 7.61	<u>0.04</u>	ns				
Q1D1B	Satisfaction with quantity of available electronic library resources	2722 2728	82.7% 86.6%	2.00 1.96	7.28 7.26	<u>0.02</u>	ns				
Q1D1C	Satisfaction with ease of use of available electronic library resources	2771 2764	84.2% 87.7%	1.91 1.94	7.52 7.35	<u>0.17</u>	**				

### Administrative IS 3A

Q3A1A	used campus online information system to get student records	3268 3124	99.3% 99.2%					52.7% 54.2%	<u>-1.4%</u>	47.3% 45.8%	<u>1.4%</u>
Q3A1B	Satisfaction with online access to get student record information	1712 1670	52.0% 53.0%	2.59 2.59	6.35 6.63	<u>-0.28</u>					

### Workstation Access 4A

<b>Policy</b>											
Q14B5C	Satisfaction with workstation upgrade/replacement	3048	92.6%	2.69	6.57	<u>6.57</u>					
<b>Hardware</b>											
Q14A1	Access to a university-provided computer workstation	3281 3135	99.7% 99.5%				**	97.5% 96.2%	<u>1.3%</u>	2.5% 3.8%	<u>-1.3%</u>
Q14A1C	Satisfaction with university-provided computer workstation	3190 2989	96.9% 94.9%	2.11 2.14	7.82 7.76	<u>0.06</u>	ns				
<b>Software</b>											
Q14A2	Access to university-provided computer software	3164 2975	96.1% 94.4%				***	93.6% 95.6%	<u>-2.0%</u>	6.4% 4.4%	<u>2.0%</u>
Q14A2C	Satisfaction with university-provided computer software	2944 2823	89.4% 89.6%	1.86 1.92	7.85 7.81	<u>0.04</u>	ns				
<b>Installation/Maintenance</b>											
Q14A3	Access to help to set up, upgrade...univ.-provided computer equipment	3178 2998	96.5% 95.2%					97.8% 97.2%	<u>0.7%</u>	2.2% 2.8%	<u>-0.7%</u>

Item ID	Question	Number	% of All	SD	Mean	Change	Signif.t	Yes (%)	Change	No (%)	Change
Q14A3B	Received help to set up, upgrade...univ.-provided computer equipment	3104 2908	94.3% 92.3%				ns	96.0% 96.4%	-0.4% 3.6%	4.0% 3.6%	0.4% 0.4%
Q14A3C	Satisfaction with campus help for installing, upgrading...computer equipment	2974 2797	90.3% 88.8%	2.23 2.40	7.46 7.10	0.36	***				

### Network Access 4B

Q4B1A	Used campus access to Internet/Web	3287 3149	99.8% 100.0%					98.9% 98.0%	0.9% 2.0%	1.1% 2.0%	-0.9% -0.9%
Q4B1B	Satisfaction with campus access to the Internet	3238 3074	98.4% 97.6%	1.82 1.68	8.23 8.51	-0.28					
Q4B3A	Used modem/DSL/etc. to access campus network	3281 3145	99.7% 99.8%					79.4% 71.5%	7.8% 3.8%	* 20.6% 28.5%	-7.8% -7.8%
Q4B3B	Satisfaction with modem/DSL/etc. access to campus network	2585 2228	78.5% 70.7%	2.47 2.55	6.90 6.55	0.35					

### Tech Support 4A

General											
Q4A5	Access to help solve problems with university-provided computer or software	3178 2996	96.5% 95.1%				ns	97.8% 97.8%	-0.1% 2.2%	2.2% 2.2%	0.1% 0.1%
Q4A5E7	How reliant is respondent on tech support staff	3091	93.9%	2.75	6.55	6.55					
Q4A5E2	Received technical help	3103	94.3%					93.5%	93.5%	* 6.5%	6.5%
Q4A5E3	Number of times technical help received	2897	88.0%								
			1 to 2	792	27.3%						
			3 to 5	1235	42.6%						
			6 to 10	529	18.3%						
			more than 6	341	11.8%						
Q4A5E4	Number of times problems satisfactorily resolved	2894	87.9%								
			all of the time	1372	47.4%						
			most of time	1115	38.5%						
			some of time	375	13.0%						
			none of time	32	1.1%						
Q4A5E6	Tech help provided by unit/dept	2871	87.2%					54.8%	54.8%	* 45.2%	45.2%
Q1C123A	Access by students to help with IT problems	2412	73.3%					80.4%	80.4%	19.6%	19.6%

<u>Item ID</u>	<u>Question</u>	<u>Number</u>	<u>% of All</u>	<u>SD</u>	<u>Mean</u>	<u>Change</u>	<u>Signif.†</u>	<u>Yes (%)</u>	<u>Change</u>	<u>No(%)</u>	<u>Change</u>	
Q1C123B	Used tech help with student use of IT tools	1933	58.7%					55.8%	<u>55.8%</u>	*	46.8%	<u>46.8%</u>
Q4A5E5	Satisfaction with time it took to resolve problem	2858	86.8%	2.46	7.13	<u>7.13</u>						

### Training 4A

#### General

Q4A8A_1	Used computer-based training resources	3199	97.2%				***	42.8%	<u>-10.2%</u>	**	57.2%	<u>10.2%</u>
		3015	95.7%					53.0%			47.0%	
Q14A8A_3	Used training workshop(s)	3199	97.2%				*	63.4%	<u>-2.9%</u>		36.6%	<u>2.9%</u>
		3015	95.7%					66.3%			33.7%	
Q14A8A_7	Participated in "none" of the available training resources	3199	97.2%					26.7%	<u>3.9%</u>		73.3%	<u>-3.9%</u>
		3015	95.7%					22.9%			77.1%	
Q14A8A_6	Used "other" training resources	3199	97.2%					14.8%	<u>12.0%</u>	*	85.2%	<u>-12.0%</u>
		3015	95.7%					2.8%			97.2%	
Q4A8A1	Satisfaction with training activities/programs	2259	68.6%	2.15	7.12	<u>-0.04</u>	ns					
		2260	71.7%	2.03	7.16							

#### Policy

Q4A7	Importance of campus-provided training activities or programs	3175	96.4%	2.27	8.24	<u>-0.27</u>	***					
		3000	95.2%	2.09	8.51							

### Equipment 4A

Q4A10a	Satisfaction with condition/capabilities of computing equipment	3171	96.3%	2.00	7.50	<u>0.04</u>						
		2979	94.6%	1.95	7.46							
Q4A11	Satisfaction with condition/capabilities of telephone equipment	3277	99.5%	2.33	7.55	<u>-0.05</u>	ns					
		3142	99.7%	2.12	7.60							
Q4A12	Satisfaction with condition/capabilities of video conferencing equipment	1185	36.0%	2.86	5.70	<u>-0.45</u>						
		1115	35.4%	2.73	6.15							