DOCUMENT RESUME

ED 370 515 HE 027 476

AUTHOR Green, Kenneth C.; Eastman, Skip
TITLE Campus Computing 1992. The EDUCOM-USC Survey of Desktop Computing in Higher Education.
INSTITUTION Interuniversity Communications Council (EDUCOM), Princeton, N. J.; University of Southern California, Los Angeles. Center for Scholarly Technology.
PUB DATE 93
NOTE 82p.; Sponsored by 16 computer and computer software companies. For the 1991 and 1993 surveys, see HE 027 475 and HE 027 477 respectively; for the 1990 survey, see ED 339 368.
AVAILABLE FROM Center for Scholarly Technology, University of Southern California, 100 Doheny Library, Los Angeles, CA 90089-0182 ($30).
PUB TYPE Reports - Research/Technical (143) -- Statistical Data (110) -- Tests/Evaluation Instruments (160)

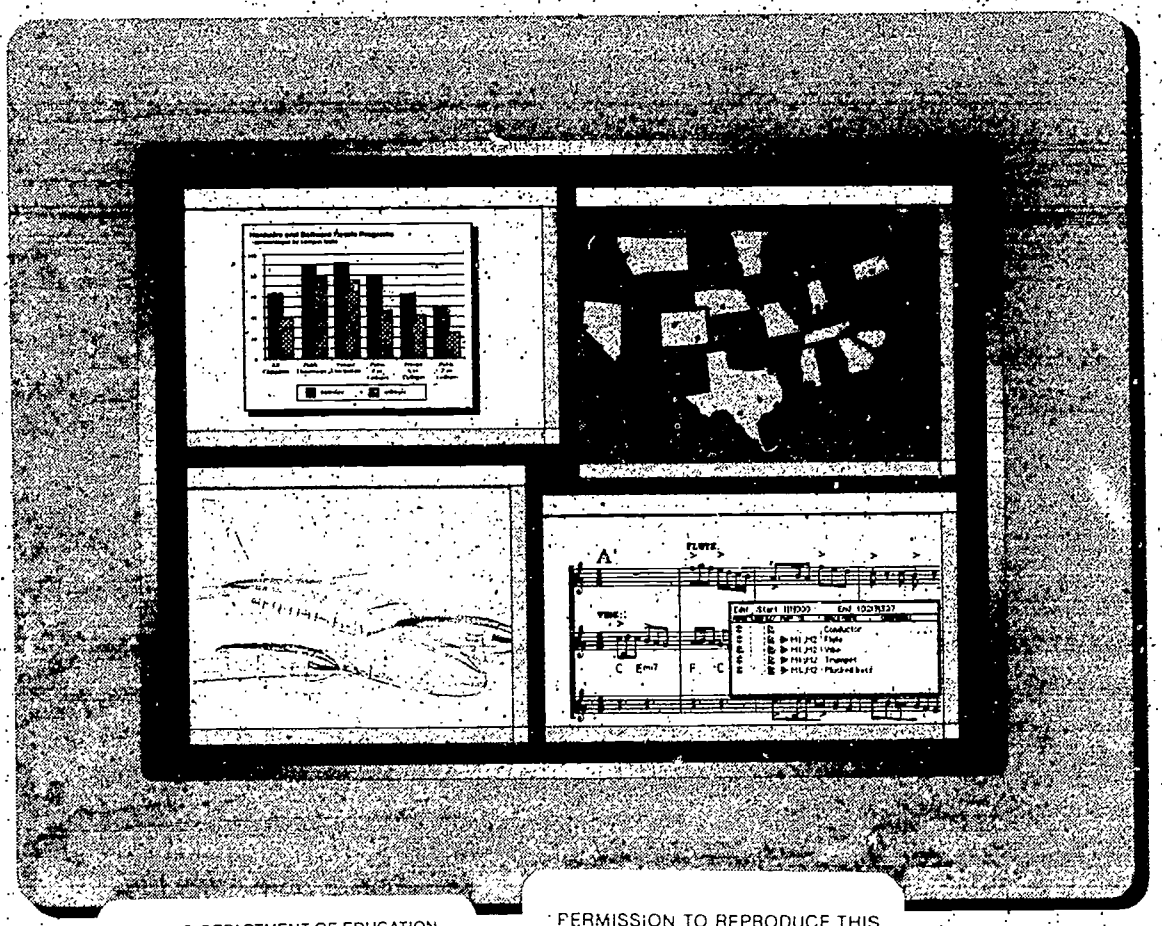
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Computer Networks; Computers; Computer Software; *Computer Uses in Education; Educational Finance; *Higher Education; Intellectual Property; *Microcomputers; School Policy
IDENTIFIERS Interuniversity Communications Council; Software Copying; Software Piracy

ABSTRACT

A national survey of desktop computing in higher education was conducted in 1992 of 2500 institutions. Data were responses from public and private research universities, public and private four-year colleges, and community colleges. Respondents (N=970) were individuals specifically responsible for the operation and future direction of academic computing on their campuses. Among key findings were (1) 31 percent of campuses reported a decline in overall academic computing budgets for 1992-93 and 25.1 percent reported a mid-year budget cut; (2) there was a clear movement towards generic '386 and '486 systems among campuses that recommend IBM compatible products and the proportion of campuses encouraging campus buyers to purchase '486 systems tripled from the previous year; (3) MS-DOS retained its position as leading operating system for desktop computers on campuses; (4) expanding the campus computer network continued to be a top institutional priority; (5) 59.9 percent of campuses have a code of conduct for software use and duplication and another 21.5 percent have a code of conduct under development; and (6) there was an increase in the proportion of students who own personal computers: up to 20.5 percent from 16.5 percent 2 years ago. Also included are the survey data and appendixes with study methodology, the survey form, and a list of participating institutions. (JB)

CAMPUS COMPUTING 1992

The EDUCOM•USC Survey of Desktop Computing in Higher Education



Kenneth C. Green & Skip Eastman

THE JAMES IRVINE FOUNDATION
CENTER FOR SCHOLARLY TECHNOLOGY
UNIVERSITY OF SOUTHERN CALIFORNIA

CAMPUS COMPUTING 1992

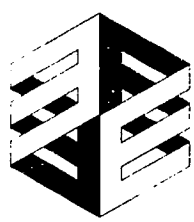
The EDUCOM•USC Survey of Desktop Computing in Higher Education

Kenneth C. Green & Skip Eastman

THE JAMES IRVINE FOUNDATION
CENTER FOR SCHOLARLY TECHNOLOGY
UNIVERSITY OF SOUTHERN CALIFORNIA

The James Irvine Foundation
Center for Scholarly Technology
University of Southern California

The James Irvine Foundation Center for Scholarly Technology emphasizes research and development projects that address technology and information resources affecting higher education. A key component of the Center's mission is research about the organizational impacts of campus efforts to acquire and use technology as a resource for teaching, learning, and instruction. The Center also develops instructional resources for USC faculty and information access tools for the University of Southern California Libraries.



EDUCOM

EDUCOM, cosponsor of the 1992 Desktop Computing Survey, is a nonprofit consortium of over 600 colleges and universities and some 110 corporate affiliates. The consortium seeks to facilitate the introduction, use, access to and management of information resources in higher education.

Additional copies of this report may be purchased from The James Irvine Foundation Center for Scholarly Technology, University of Southern California, 300 Doheny Memorial Library, Los Angeles, CA 90089-0182. Price: $30.00 (including postage) Please include a check with your order.

CAMPUS COMPUTING 1992

The EDUCOM•USC Survey of Desktop Computing in Higher Education

TABLE OF CONTENTS

CAMPUS COMPUTING 1992

The EDUCOM•USC Survey of Desktop Computing in Higher Education

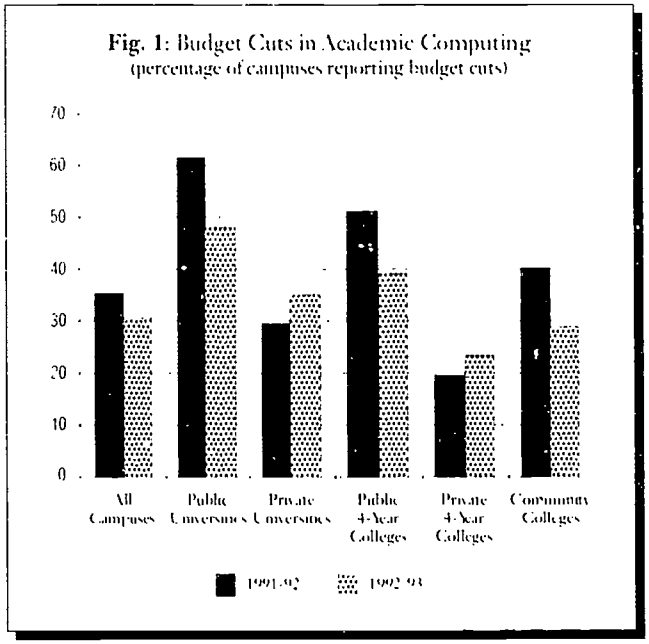
The EDUCOM•USC National Survey of Desktop Computing in Higher Education was conducted in Spring and Summer 1992 by The James Irvine Foundation Center for Scholarly Technology at the University of Southern California, in cooperation with EDUCOM and with support from 16 corporate sponsors.[1] The data presented in the 1992 report are based on the responses of some 970 colleges and universities across the United States. The large number and broad mix of campuses participating in this project, now in its third year, make the EDUCOM•USC Survey the largest national survey of desktop computing (i.e., focused on personal computers and workstations) of its kind.

The survey results presented in this report summarize the data from public and private research universities, public and private four-year colleges, and community colleges (i.e., public two-year institutions).[2] The survey respondents were individuals specifically responsible for and knowledgeable about the current operation and future direction of *academic computing* on their campuses.[3] Surveys were mailed in Spring 1992 to the senior academic computing officer at more than 2,500 colleges and universities across the United States; where it was not possible to identify a specific individual with an academic computing title, the survey was sent to the senior academic officer of the institution. (Additional information about the survey methodology is presented in Appendix A.)

Budget Cuts Continue

Although the overall proportion of campuses reporting budget cuts fell somewhat over the previous year, the financial problems confronting the nation's colleges and universities continue to affect campus efforts to expand and enhance computing services. About one-third (31 percent) of the nation's colleges and universities report a decline in the overall academic computing budget for 1992-93 (Fig. 1), down from 37.2 percent in 1991. However, the proportion of institutions reporting no change in their academic computing budget (essentially a slight decline in resources given inflation) grew from 26.9 percent in 1991 to 33.4 percent in 1992. Finally, one-fourth (25.1 percent) of the nation's colleges reported a mid-year budget cut during the 1991-92 academic

Fig. 1: Budget Cuts in Academic Computing
(percentage of campuses reporting budget cuts)



[1] The 1992 EDUCOM•USC National Survey of Desktop Computing in Higher Education was supported, in part, by grants from the following sponsors: ABC/Intellimation, Apple Computer, BRS Software Products, Cisco Systems, Eastman-Kodak Company, Follett Campus Resources, Hewlett-Packard, IBM, Lotus Development Corp., McGraw-Hill, Inc., Microsoft Corp., NeXT, Inc., SPSS, Inc., John Wiley & Sons Publishers, and Zenith Data Systems.

[2] Several hundred private two-year colleges were included in the mailing. However, only a very small number of these institutions responded to the 1992 survey. The low response rate and small number of responding two-year private colleges could not in any way be viewed as being representative of the larger population of some 250 private two-year colleges. Consequently, the data for these institutions are not reported.

[3] The EDUCOM•USC survey focuses on *academic* computing, i.e., the use of computers to support scholarship, research, and instruction. The survey does not address the use of desktop computers in academic administration (e.g., registration, budget control and financial management, student transcripts, and personnel records).

year. (Fig. 2) At many institutions the mid-year budget cuts and give-backs and current year budget reductions come on top budget cuts experienced in the 1991-92 academic year.

The aggregate data mask important differences between public and private institutions. Last year's survey revealed that budget cuts for A/Y 1991-92 were concentrated in public institutions. However, the 1992 survey indicates that budget cuts have moved into parts of the private sector: one fourth (23.5 percent) of the private universities participating in the survey report a cut of 5 percent or more in academic computing budgets, up from 15.0 percent in 1991. Yet public institutions remain vulnerable: over half of the public research universities (56.5 percent) and one-third of the public four-year colleges (32.5 percent) experienced mid-year budget cuts or givebacks, compared to one-fifth (21.1 percent) of private universities and just 15 percent of private four-year colleges. The situation in community colleges improved slightly: 29.1 percent experienced budget cuts (compared to 41.1 percent in 1991), while 13.6 percent reported a mid-year budget give-backs. (Fig. 2)

These data clearly reflect the continuing financial problems confronting higher education. The reduced resources for academic computing are in part a direct consequence of the financial problems currently affecting most campuses. The current recession has hurt the states, which affects state support for higher education. It has also hurt families, which influences the enrollment decisions of students who might otherwise attend private institutions. Moreover, computing services, like libraries, often experience disproportionate budget cuts during periods of financial difficulty.

Campuses are making special efforts not to reduce computing services even as they experience budget cuts. The survey data indicate that the majority of campuses are trying not to reduce staff, services (for example, consulting), or hours for public access to facilities. The survey also reveals focused efforts to make the most effective use of limited financial resources: most campuses report that they are exploring less expensive hardware and software options, and are more active about recycling older equipment to departments and programs that may not require state-of-the-art hardware. Taken together the data suggest that campuses across the country are making concerted efforts to leverage the value of their shrinking computing dollars. (Fig. 3)

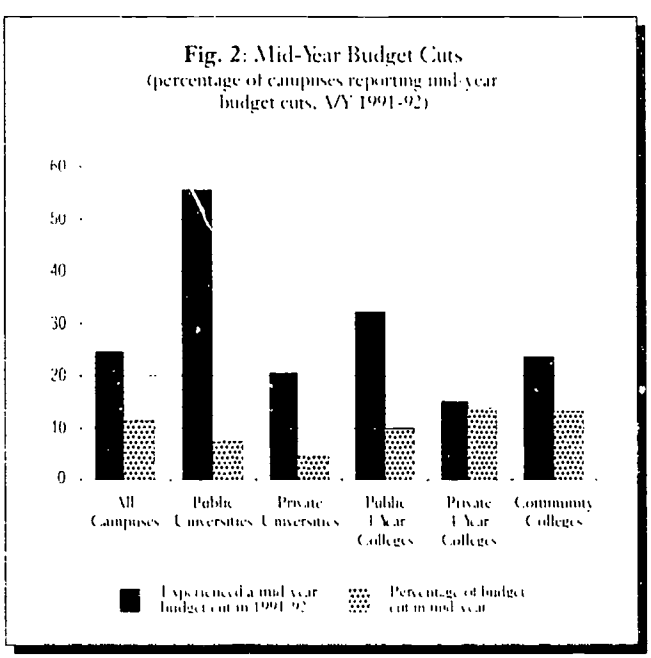


Fig. 2: Mid-Year Budget Cuts
(percentage of campuses reporting mid-year budget cuts, A/Y 1991-92)

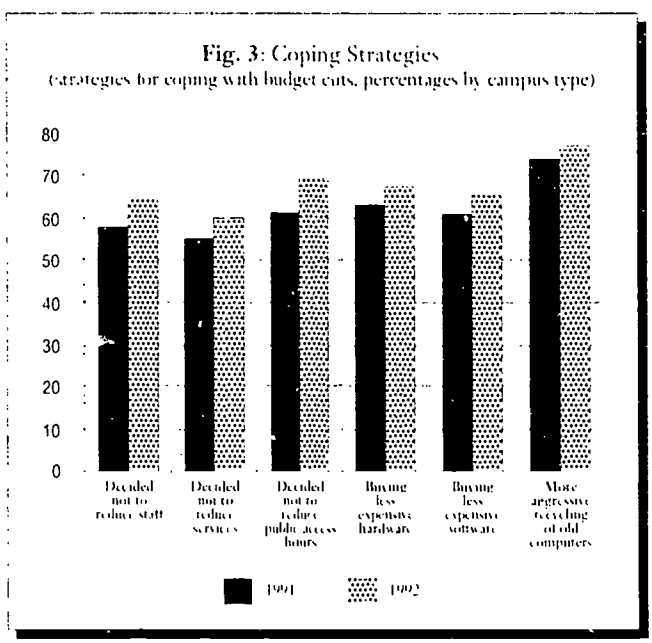
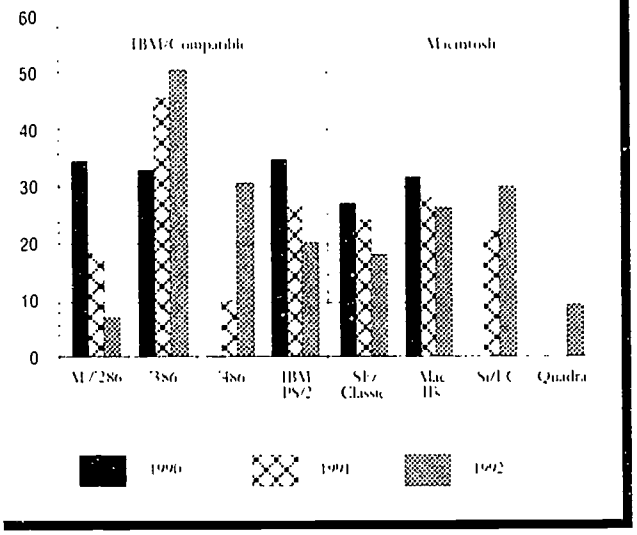


Fig. 3: Coping Strategies
(strategies for coping with budget cuts, percentages by campus type)

Hardware Preferences

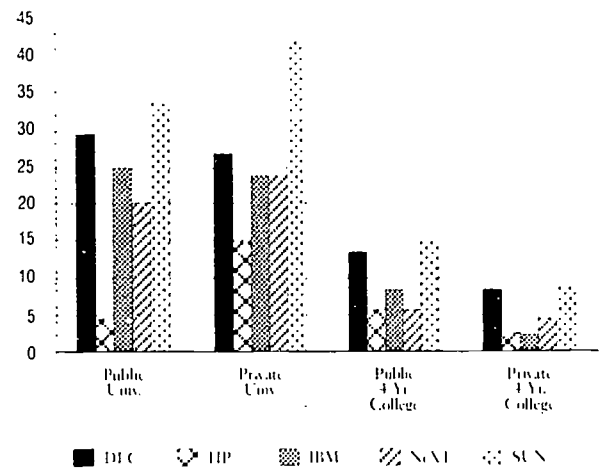
The 1992 data show a clear movement towards generic '386 and '486 systems among campuses that recommend IBM/compatible products. Fully half (50.6 percent) of the participating campuses indicate that they recommend '386 systems, up slightly from 45.5 percent in 1991. More striking, however, is that the proportion of campuses encouraging campus buyers to purchase '486-based systems tripled over the past year, rising to 30.4 percent in 1992 from 10.0 percent in 1991. The proportion of campuses specifically recommending IBM PS/2 systems dropped by about a third over the past three years, to 20.4 percent in 1992. (Fig. 4)

Fig. 4: Recommended Desktop Computers
(percentages by product type, 1990-1992)



Without question the shift to '486 systems and away from premier brands such as IBM to generic compatible products reflects the intense price competition among manufacturers over the past year. The survey data suggest that campuses, like other market segments, are looking for value and will not pay a premium for reputation. However, the major vendors may have a chance to buy back market share as the survey data were collected before major price cuts by IBM and other vendors late in the summer and early in fall 1992. These price cuts will, no doubt, help campuses stretch their reduced purchasing dollars and aid vendors to recapture market share.

Fig. 5: Recommended Workstations
(percentages by institutional type, 1992)



In the Macintosh domain, the proportion of campuses recommending SI and LC platforms grew by one third over the past year, rising to 30.0 percent in 1992. Mac II platforms fell slightly from 28.2 percent in 1991 to 25.9 percent in 1992, no doubt off-set by the new Quadra products, which were recommended by 8.9 percent of the responding institutions.

In the Unix workstation arena, products from Sun Microsystems and Digital Equipment Corporation (DEC) dominate the campus market. In research universities, where Unix platforms play a key role in faculty and student research, Sun is the most commonly recommended platform: one-third (33.8 percent) of the public research universities and over 40 percent of the private research universities recommend Sun systems, followed by DEC (29.2 percent for public universities and 26.5 percent for private universities). (Fig. 5)

Operating Systems and Enhancements

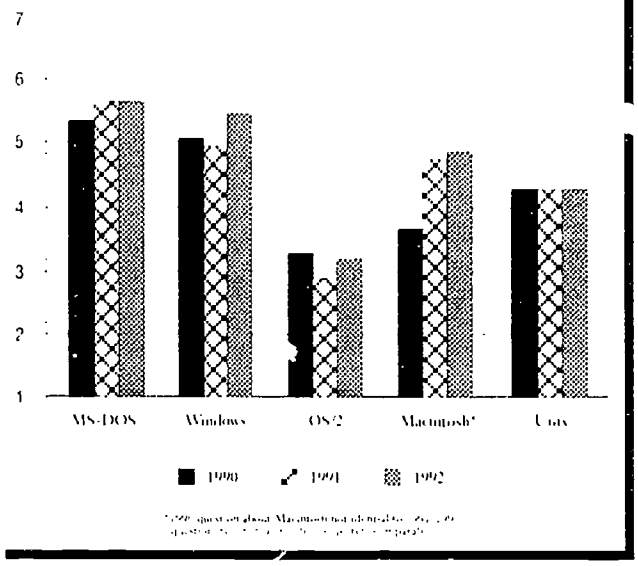
The 1992 data show that MS-DOS retained its position as the leading operating system for desktop computers on college campuses. Survey respondents, generally the senior academic computing officer, were asked to rate the future importance of various operating systems, O/S enhancements, and hardware options on a 1-7 scale (1=not important; 7=very important); MS-DOS was highest ranked at 5.7, unchanged from 1991. However, Windows rose to 5.5 in 1992, up from 5.0 last year. Macintosh O/S came in third with a rank of 4.9, up slightly from 4.8 in 1991. Unix again had a mean score of 4.3. IBM's OS/2 gained ground in the 1992 survey, up to 3.2 from 2.8 in 1991. (Fig. 6)

The growing acceptance of Windows reflects an important shift in the installed base of computers on the nation's college campuses. Over the past year campuses, like corporations, have been retiring their older computers and migrating to the more powerful but less expensive '386 and '486 systems needed to run Windows and Windows software. The big drop in hardware prices over the past year has been an important catalyst for this changeover.

The aggregate market data mask important trends within individual campus sectors. In research universities, for example, Unix is the top ranked operating system or environment (1992 score: 5.7, unchanged from 1991), while Macintosh rates on par with Windows and ahead of MS-DOS. In contrast, MS-DOS and Windows are the top ranked environments in community colleges (scale score: MS-DOS: 5.9; Windows: 5.7).

It is important to note, however, that while hard-

Fig. 6: Operating System Priorities, 1990-1992
(scale: 1=not important; 7=very important)

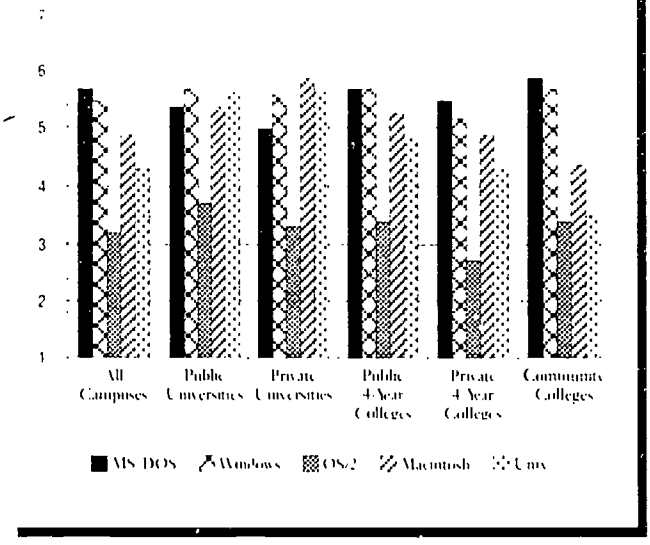


ware prices have dropped substantially over the past year, the cost of software has remained stable. Consequently, the actual cost of a complete IBM compatible system, including operating system, Windows, application software, and network card, has probably remained stable. (Fig. 7)

Campus Networks

As in past surveys, respondents again indicate that expanding the campus network is a top institutional priority (scale score of 6.2, up from 6.1 in 1991). Indeed, more than two-thirds (69.1 percent) of the 1992 respondents indicate that network issues are

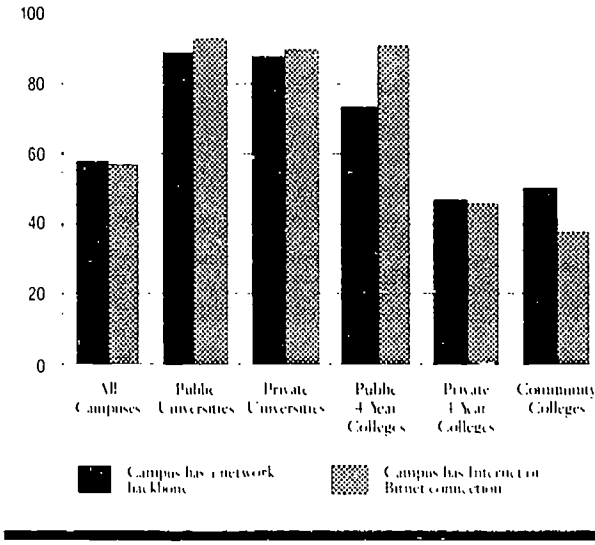
Fig. 7: Operating System Priorities by Campus Type
(scale: 1=not important; 7=very important)



"more important this year than last" at their institutions. Networking issues rank highest in research universities, although the gap has narrowed across institutional segments over the past year. (Fig. 8)

Over half (57.9 percent) of the responding campuses report that their institution has a campus-wide backbone for their network. This ranges from a high of just under 90 percent in universities to a low of 50 percent in community colleges. Fiber is the most commonly reported medium for the backbone: over half (55.5 percent) identify fiber as the primary medium, followed by Ethernet/Coax (29.6 percent) and Twisted Pair (11.5 percent). By campus sector, fully two-thirds of the four-year institutions (universities and four year colleges) report using fiber as the primary backbone medium. In community colleges, however, Ethernet/Coax is the most common: 46.1 percent

Fig. 8: Network Backbone and Internet/Bitnet Access
(percentages by institutional type)



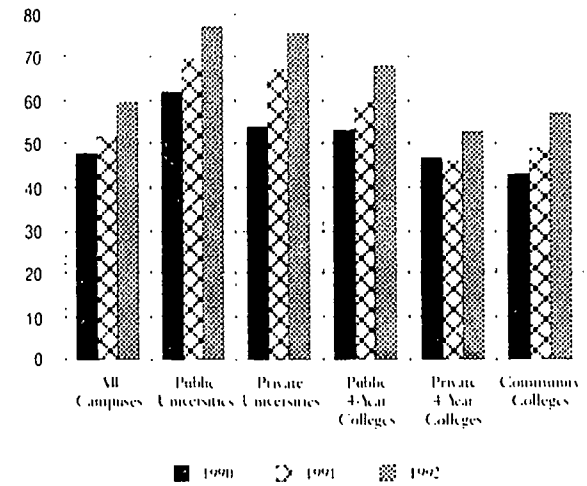
report using Ethernet/Coax, compared to 30.3 percent for Fiber.

About half (48.3 percent) of the responding campuses report their institution has access to the Internet. By sector, this ranges from a high of 90.8 percent in public universities to a low of 27.8 percent in community colleges.

Codes of Conduct

Three-fifths (59.9 percent) of the campuses participating in the 1992 survey report that they have a campus "Code of Conduct" for the use of software, up from 48.2 percent in 1990 (a 25 percent gain in just 2

Fig. 9: Campus Codes of Conduct
(percentage reporting a formal "Code of Conduct" for software use)



years). Another 21.5 percent of the participating campuses report that a Code of Conduct is now under development at their campus, about the same level as in previous years.

The EDUCOM Code
A Statement of Principle about Intellectual Property

Respect for intellectual labor and creativity is vital to academic discourse and enterprise. This principle applies to all works of all authors and publishers in all media. It encompasses the right to acknowledgment, right to privacy, and right to determine the form, manner, and terms of publication.

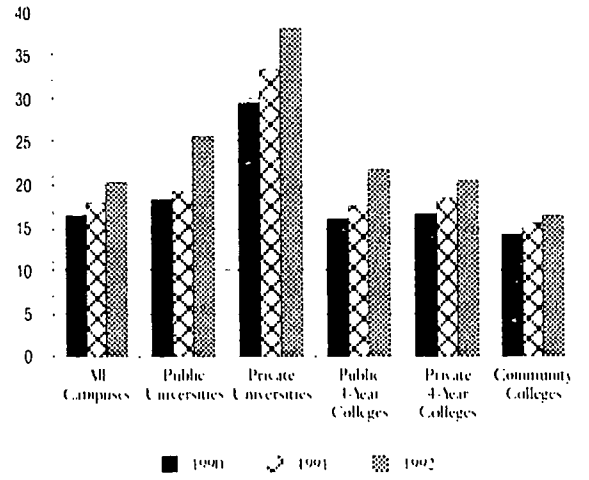
Because electronic information is volatile and easily reproduced, respect for the works of others is especially critical in computer environments. Violations of authorial integrity, including plagiarism, invasion of privacy, unauthorized access, and trade secret and copyright violations may be grounds for sanctions against members of the academic community.

For more information about the EDUCOM Code contact

EDUCOM
1112 16th Street, NW Suite 600
Washington, DC 20036
(202) 872-4200

Campus Codes of Conduct are most common at research universities: over three-fourths of public and private research universities participating in the 1992 survey report existing Codes of Conduct. (Fig. 9) Research universities, both public and private, are also the most likely of all campuses to have adopted the EDUCOM Code, a statement about the ethical use of software in higher education: fully half (55.2 percent) of the public universities and two-thirds (65.6 percent) of the private universities report having adopted the EDUCOM Code.

Fig. 10: Student Ownership of Computers
(percentages as reported by academic computing officers)

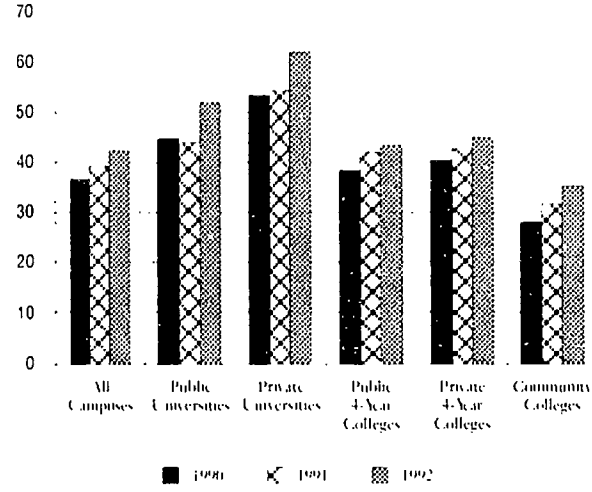


Student Access to Computers

The 1992 survey reveals that student ownership of computers has grown by one-fifth over the past two years, from 16.5 percent in 1990 to 20.5 percent in 1992. Similarly faculty ownership has grown by one sixth during the same period, rising to 42.7 percent in 1992. Student ownership remains highest among the campus sectors that have well-developed resale programs. The EDUCOM•USC surveys continue to provide ample evidence that campus resale programs help offset demand for computing access and services that might otherwise be an institutional responsibility. (Fig. 10)

The 1992 data show little change in the ways that campuses provide access to computing resources. Research universities own a larger number of computers per student than other types of institutions, and their students are more likely to own their own computers than undergraduates in four-year or community colleges. However, research institutions make a

Fig. 11: Faculty Ownership of Computers
(percentages as reported by academic computing officers)



far smaller proportion of their overall institutionally-owned computers available to students than do other types of institutions. The survey data again confirm that research institutions and more affluent campuses invest a greater proportion of their desktop computing resources in their faculty. (Fig. 11)

Technology as an Instructional Resource

Just over one-fifth (27.6 percent) of all institutions report that they have a formal campus policy for integrating computers into the curriculum, virtually unchanged from previous years. Community colleges are most likely to report a formal curriculum plan (30.3 percent), while private research universities are least likely to do so (14.7 percent).

The 1992 data again show that although many campuses want to use computer-based instructional technologies, relatively few institutions offer any rewards or incentives to faculty to encourage the development of instructional resources. Over two-fifths (44.1 percent) of the participating campuses report offering "support for faculty [to develop instructional resources" (up from 40.7 percent in 1990). However, only 14.5 percent report rewarding faculty for developing instructional technology, a small gain over the 12.9 percent reported in 1990.

Campus respondents continue to view faculty in business and engineering to be the best prepared to use technology as a resource for instruction and scholarship. In contrast, respondents report that faculty in the humanities and fine/performing arts are least prepared to use technology resources. (Fig. 12) Similarly, undergraduates in business and engineering are viewed by the survey respondents as being the "best prepared by their institution for the technology skills" they will need in the coming decade; again, humanities and fine/performing arts students are viewed as the least-well prepared in the area of technology skills. (Fig. 13)

Finally, as noted in past reports, most campuses have yet to develop an internal amortization model for acquiring and retiring technology resources. Campus and departmental purchasing of hardware and soft-

Fig. 12: Faculty Preparation to Use Technology Resources
(assessment of academic computing directors; scale: 1=poor; 5=excellent)

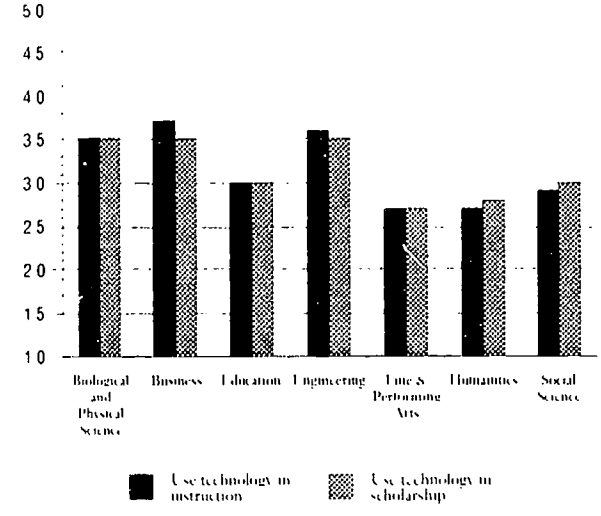


Fig. 13: Student Preparation to Use Technology Resources
(assessment of academic computing directors; scale: 1=poor; 5=excellent)

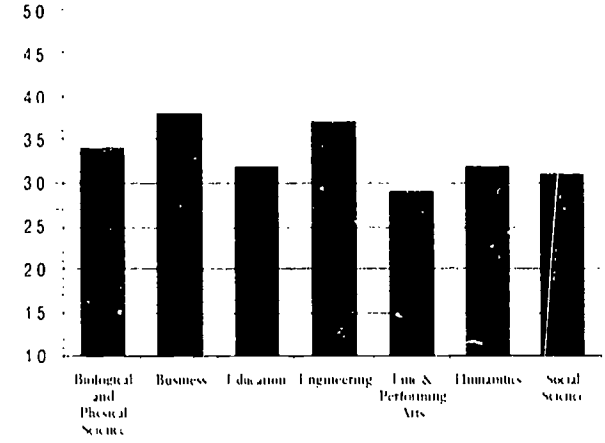
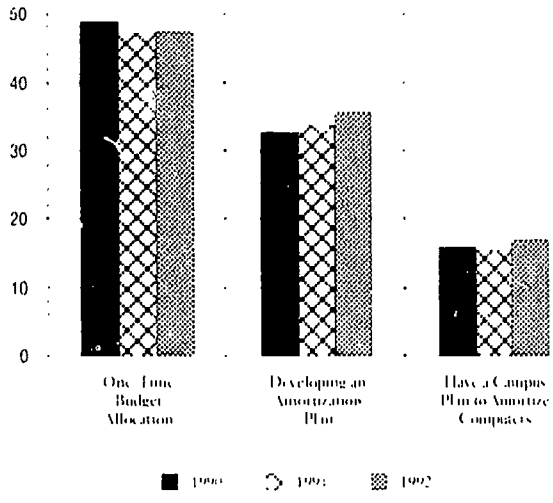


Fig. 14: Planning for Acquiring and Retiring Technology
(percentages, 1990 and 1992)



ware remains largely opportunistic. (Fig. 14) Given the increasingly shortened half-life of computer hardware and the even shorter half-life of software, the inability of most campuses to develop a financial plan for replacing aging technology resources will pose growing problems for the technology infrastructure of the nation's college campuses. Moreover, it seems unlikely that this will change even when campuses emerge from their current financial difficulties, presumably in the next few years. The competing claims for infrastructure and central service funds — for buildings, science labs, computer networks, and libraries — will pose problems for all types of campuses, from research universities to community colleges, seeking to capitalize on the new technologies and information resources emerging in the mid-1990s.

CAMPUS COMPUTING 1992

The EDUCOM•USC Survey of Desktop Computing in Higher Education

Survey Data

GENERAL CAMPUS POLICIES ABOUT DESKTOP COMPUTING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Do you have formal policy on computers:						
for curriculum utilization?	27.6	27.7	14.7	28.3	25.7	30.3
for undergraduates?	28.8	27.7	11.8	29.5	31.3	28.1
for graduate students?	8.0	18.5	2.9	15.1	9.5	1.3
Do you have a computer instruction/ computer competency requirement?	31.4	20.0	17.6	36.7	36.5	27.5
Do you have formal policy on confidentiality of computer data?	58.9	75.4	70.6	63.9	51.3	59.1
Do you have formal policy regarding development of software by faculty and staff	19.1	35.4	26.5	22.3	9.5	22.5
Micros required/strongly recommended*						
None	83.8	66.2	70.6	81.9	81.9	91.6
Specific disciplines	9.2	23.1	8.8	8.4	9.9	6.3
Individual units	2.6	9.2	5.9	3.0	2.6	.6
All students	6.0	6.2	14.7	9.0	7.6	1.9
O/S recommended/supported*						
Apple II	31.2	21.5	17.6	42.8	29.6	30.0
Macintosh	71.7	90.8	88.2	88.6	71.1	57.8
UNIX	45.7	87.7	88.2	56.6	49.7	23.1
MS/PC-DOS	93.8	95.4	97.1	94.0	92.4	94.4
Windows	68.8	80.0	70.6	72.9	61.5	71.3
OS/2	18.6	38.5	14.7	24.1	9.9	20.3
Amiga O/S	5.2	4.6	2.9	4.8	4.6	6.3
None recommended	4.3	6.2	.0	3.0	3.6	5.6
Are there recommended brands*						
for students?	28.6	38.5	47.1	27.7	34.9	19.1
for faculty?	42.3	44.6	47.1	39.8	45.7	39.4
for admin./staff?	50.1	50.8	47.1	50.6	54.6	45.6

Percentages by Campus Category
(*Columns may total more than 100% since responses were not exclusive)

GENERAL CAMPUS POLICIES ABOUT DESKTOP COMPUTING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
What desktop computers recommended*						
Macintosh Plus/II	17.9	20.0	23.5	22.9	22.4	10.0
Macintosh SI/LCII	30.0	40.0	41.2	39.8	33.6	18.4
Macintosh II series	25.9	47.7	38.2	34.3	25.0	16.6
Macintosh Quadra	8.9	30.8	11.8	13.3	6.9	3.8
AT-level/'286 units	6.9	4.6	8.8	4.8	5.9	9.1
IBM PS/2 Systems	20.4	32.3	35.3	16.3	16.8	21.9
'386/'386SX systems	50.6	49.2	55.9	55.4	52.3	46.3
'486/'486SX systems	30.4	44.6	44.1	35.5	25.0	28.4
What workstations are recommended*						
DEC	10.1	29.2	26.5	13.3	8.6	4.4
HP/Apollo	3.3	4.6	14.7	6.0	2.6	.9
IBM	7.1	24.6	23.5	8.4	2.3	5.6
NeXT	5.2	20.0	23.5	6.0	4.6	.3
Sun	10.6	33.8	41.2	15.1	8.9	1.9

Percentages by Campus Category
(*Columns may total more than 100% since responses were not exclusive)

CURRENT MICROCOMPUTER AND DESKTOP COMPUTER FACILITIES	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Students per all desktop computers currently used on campus (Enrollment divided by reported total).....	11.3	5.2	3.3	9.8	8.0	17.3
Students per institutionally-owned desktop computer or workstation (Enrollment divided by number of desktop computers).....	14.3	6.9	5.8	11.6	12.3	19.8
Total number of desktop computers used on your campus today.....	1186.1	6595.3	3753.3	1485.5	422.1	455.7
Students per all desktop computers currently used on campus (Enrollment divided by reported total).....	11.3	5.2	3.3	9.8	8.0	17.3
Total number of computer labs, clusters and classrooms on campus this term?....	18.1	35.2	13.0	18.9	10.6	22.2
Total number of microcomputers in all the labs?.....	226.6	566.0	226.0	316.2	102.3	237.2
Total number of Unix workstations in all the labs?.....	36.5	97.8	49.2	38.2	12.8	27.5
Students per institutionally-owned computers available in labs or clusters (Enrollment divided by lab totals).....	36.1	37.6	33.4	30.7	32.6	42.1
Ratio of lab desktop computers to total institutionally-owned desktop computers	.6	.2	.2	.5	.6	.8

Means by Campus Category

CURRENT MICROCOMPUTER AND DESKTOP COMPUTER FACILITIES	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Proportion of students who have or own computers?	20.5	25.8	38.2	22.0	20.7	16.4
Proportion of faculty who have or own computers?	42.7	52.3	62.2	43.9	45.2	35.7
Proportion of administrators who have or own computers?	38.5	44.1	50.3	37.4	37.8	37.3
Est. desktop units purchased 1991-92:						
by students	158.0	410.4	504.6	179.0	69.1	122.3
by faculty	50.9	209.3	146.5	76.5	18	27.0
by admin	43.3	199.6	191.5	48.3	14.8	19.8
by labs	64.0	228.1	78.9	73.2	29.3	62.0
Est. desktop units purchased 1992-93:						
by students	182.5	478.1	549.0	183.9	87.7	146.6
by faculty	56.7	242.0	163.6	77.3	22.3	29.2
by admin	43.6	184.8	178.0	55.1	16.5	19.0
by labs	67.0	224.5	72.7	73.9	35.4	63.0

Means by Campus Category

CURRENT MICROCOMPUTER AND DESKTOP COMPUTER FACILITIES	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
No specific lab charge to students to use campus computer labs.....	62.0	56.9	76.5	63.3	59.2	63.4
Specific charge for use of labs?:						
included in student fees.....	17.9	27.7	2.9	23.5	18.8	13.8
included in course fees.....	19.3	13.8	8.8	13.3	19.7	24.4
hourly rates.....	1.2	1.5	5.9	.6	1.0	1.3
printing.....	6.4	21.5	17.6	4.8	7.9	1.6

Percentages by Campus Category

HARDWARE/SOFTWARE ACQUISITION POLICIES AND PROCEDURES	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Does your campus have a special resale agreement with hardware vendors?						
No resale program	33.8	7.9	3.0	18.9	36.2	47.8
No but sell computers on-campus	1.7	1.6	.0	1.8	2.0	1.6
Campus bookstore	23.8	41.3	36.4	35.4	16.6	19.7
Campus center	24.7	31.7	54.5	26.2	31.2	13.1
Off-campus dealer	16.0	17.5	6.1	17.7	14.0	17.8
Are computer buyers required to purchase bundled software?	7.4	3.1	26.5	8.4	11.2	2.2
Are computer buyers encouraged to purchase software?	36.7	47.7	67.6	43.4	39.8	24.7
Does your campus have a special resale agreement with software vendors?						
No resale program	47.1	11.1	6.1	36.0	49.3	62.4
No but sell software on-campus	3.1	1.6	6.1	3.7	3.3	2.5
Campus bookstore	23.2	49.2	27.3	29.3	17.7	19.7
Campus center	15.7	33.3	51.5	18.3	17.7	5.1
Off-campus dealer	10.9	4.8	9.1	12.8	12.0	10.2
Does your campus have a written policy on copyrighted software/piracy?						
No	18.6	12.9	6.1	9.8	21.7	22.8
Under development	21.5	9.7	18.2	22.0	25.4	20.2
Yes	59.9	77.4	75.8	68.3	52.9	57.1
Has your campus reviewed the EDUCOM Code?						
No	53.4	25.9	21.9	45.5	54.1	65.9
Yes--not adopted	10.5	19.0	12.5	10.3	7.9	11.3
Yes--adopted	36.1	55.2	65.6	44.2	37.9	22.9

Percentages by Campus Category

ACADEMIC & INSTRUCTIONAL COMPUTING POLICIES AND PROCEDURES	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Does your campus have a formal plan for integrating computers in curriculum?...	31.3	21.5	14.7	28.3	29.9	37.8
Does your campus have formal projects for developing instructional courseware?.....	36.0	56.9	55.9	40.4	24.7	38.1
Does your campus have support for faculty developing instructional courseware?.....	44.1	50.8	44.1	44.6	33.9	52.2
Does your campus provide support for faculty to develop research software?..	29.5	58.5	32.4	42.2	26.0	20.0
Does your campus have a policy for rewarding courseware development?.....	14.5	21.5	5.9	12.7	10.5	18.8
Does your campus have a royalty-sharing program for faculty courseware?.....	18.3	50.8	41.2	21.7	9.2	16.3
Does your campus have a library of academic software for faculty evaluation?.....	35.0	35.4	50.0	44.6	28.3	34.7
Does your campus have an agreement for duplication/distribution of software?..	63.3	80.0	88.2	71.7	55.9	60.0

Percentages by Campus Category

FUTURE ISSUES AFFECTING CAMPUS COMPUTING HOW IMPORTANT OVER NEXT 2-3 YEARS?	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Operating systems:						
MS/PC-DOS	5.7	5.4	5.0	5.7	5.5	5.9
Windows	5.5	5.7	5.6	5.7	5.2	5.7
OS/2	3.2	3.7	3.3	3.4	2.7	3.4
Macintosh	4.9	5.4	5.9	5.3	4.9	4.4
Unix	4.3	5.7	5.7	4.9	4.3	3.5
Motif	2.2	3.5	2.8	2.6	2.1	1.6
Solaris	1.8	3.0	2.3	2.0	1.5	1.5
Open Look	1.8	3.0	2.1	2.2	1.7	1.5
New Wave	1.7	2.4	1.7	2.0	1.6	1.6
NeXTStep	2.0	2.6	2.5	2.3	1.9	1.7
GUIS	5.1	5.8	5.8	5.4	5.1	4.8
Hardware:						
Laptop computers	4.5	4.7	5.1	4.6	4.5	4.3
Portable computers	3.9	4.0	4.0	4.0	3.8	3.8
'386 and '386SX CPUs	5.3	4.8	5.0	5.2	5.4	5.5
'486 and '486SX CPUs	5.7	5.8	5.6	5.7	5.5	5.7
Macintosh	4.9	5.3	5.8	5.3	5.0	4.4
IBM's Microchannel Bus	3.1	3.4	3.0	3.3	2.6	3.3
EISA Bus	3.4	4.0	3.9	3.9	3.2	3.2
Unix Workstations	4.0	5.5	5.6	4.6	3.9	3.2
Diskless Workstations	3.0	3.6	3.5	3.1	2.9	2.8
RISC-based CPUs	3.8	5.2	5.3	4.5	3.9	2.9
Resale and Distribution						
Hardware resale contracts	3.6	4.4	5.5	3.8	3.9	2.8
Software resale contracts	3.5	4.7	5.2	3.8	3.7	2.8
Software site licensing	5.6	5.8	6.3	5.9	5.5	5.4

Means by Campus Category
(Scale from 1 "Not Important" to 7 "Very Important")

FUTURE ISSUES AFFECTING CAMPUS COMPUTING HOW IMPORTANT OVER NEXT 2-3 YEARS?	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Networking						
Local area networks	6.3	6.5	6.1	6.3	6.2	6.3
Campus-wide networks	6.3	6.7	6.7	6.5	6.2	6.1
Merging data/telecomm networks	5.2	5.3	5.0	5.5	4.8	5.4
Connect PC-LANS to campus networks	5.8	6.2	5.8	6.3	5.5	5.7
Access to intercampus networks	5.8	6.2	6.4	6.2	5.6	5.6
Electronic mail	5.9	6.5	6.4	6.2	5.7	5.8
Network fax	4.1	4.3	4.4	4.1	3.8	4.4
User support & service						
User support & training	6.2	6.0	6.4	6.3	6.1	6.2
Electronic mail	5.9	6.5	6.4	6.2	5.7	5.8
Charging for previously free services	3.4	4.0	3.6	3.7	3.1	3.4
Upgrading aging hardware	6.0	5.8	6.1	6.0	6.1	6.1
Upgrading aging software	5.9	5.7	6.0	5.9	5.9	6.1
Instructional applications						
Developing instructional software	4.2	4.5	4.5	4.4	3.8	4.3
Instructional software in classes	5.6	5.3	5.2	5.6	5.4	5.8
Instructional software as supplement	5.7	5.4	5.4	5.7	5.5	5.8
Computer-based presentation facilities	5.6	5.8	5.8	5.7	5.5	5.7

Means by Campus Category
(Scale from 1 "Not Important" to 7 "Very Important")

ADDRESSING BUDGET ISSUES BY:	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Reducing purchases of Computer Technology:						
Doing Already	29.7	45.2	39.4	35.4	27.7	24.5
Beginning 92-93	6.2	4.8	3.0	8.2	6.0	5.9
Reviewing for 92-93	13.2	9.7	18.2	13.9	11.6	14.4
Decided not to do	50.9	40.3	39.4	42.4	54.7	55.2
Charging new fees to depts./service units:						
Doing Already	16.3	31.7	35.5	7.7	12.9	13.8
Beginning 92-93	3.6	8.3	3.2	5.1	1.1	4.4
Reviewing for 92-93	16.7	28.3	12.9	20.3	12.1	17.1
Decided not to do	63.4	31.7	48.4	57.0	73.9	64.8
Charging new fees to individual users:						
Doing Already	22.7	35.5	40.6	19.9	25.7	16.8
Beginning 92-93	3.8	4.8	.0	6.4	2.6	3.8
Reviewing for 92-93	19.9	33.9	18.8	22.4	14.9	20.3
Decided not to do	53.6	25.8	40.6	51.3	56.9	59.1
Exploring less expensive hardware options:						
Doing Already	68.0	70.3	81.8	65.6	71.1	64.3
Beginning 92-93	8.3	9.4	9.1	10.2	9.1	6.2
Reviewing for 92-93	12.9	10.9	.0	15.3	9.8	16.4
Decided not to do	10.9	9.4	9.1	8.9	10.1	13.1
Exploring less expensive software options:						
Doing Already	65.9	67.7	81.8	65.2	68.4	61.8
Beginning 92-93	6.8	9.7	6.1	8.2	6.0	6.2
Reviewing for 92-93	12.4	12.9	.0	13.3	9.6	15.7
Decided not to do	15.0	9.7	12.1	13.3	16.0	16.3

Percentages by Campus Category

ADDRESSING BUDGET ISSUES BY:	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Leasing rather than buying hardware:						
Doing Already	12.7	20.0	15.6	6.0	19.3	8.2
Beginning 92-93	1.7	.0	9.4	2.7	1.8	.7
Reviewing for 92-93	12.3	5.5	15.6	12.0	12.8	13.0
Decided not to do	73.2	74.5	59.4	79.3	66.1	78.1
More active recycling of older equipment:						
Doing Already	77.4	70.0	78.8	75.2	78.1	79.3
Beginning 92-93	6.9	8.3	9.1	5.9	5.4	8.2
Reviewing for 92-93	8.2	11.7	6.1	11.1	7.6	6.9
Decided not to do	7.5	10.0	6.1	7.8	9.0	5.6
Consortial purchasing programs:						
Doing Already	45.2	68.3	39.3	54.7	36.0	44.3
Beginning 92-93	2.0	.0	.0	3.3	1.2	2.7
Reviewing for 92-93	15.5	10.0	14.3	16.0	17.1	15.1
Decided not to do	37.2	21.7	46.4	26.0	45.7	37.8
Vendor Financing:						
Doing Already	18.3	38.6	21.9	20.5	15.2	15.4
Beginning 92-93	2.3	1.8	6.3	4.8	1.6	1.4
Reviewing for 92-93	12.2	7.0	12.5	13.7	11.7	12.9
Decided not to do	67.2	52.6	59.4	61.0	71.6	70.4

Percentages by Campus Category

ADDRESSING BUDGET ISSUES BY:	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Reducing hours in public access facilities:						
Doing Already	15.9	35.5	20.0	18.8	10.3	15.0
Beginning 92-93	3.2	1.6	6.7	3.9	3.3	2.7
Reviewing for 92-93	11.1	12.9	10.0	16.9	7.0	11.6
Decided not to do	69.9	50.0	63.3	60.4	79.5	70.7
Reducing services (i.e., less consulting):						
Doing Already	18.7	30.5	27.6	23.7	14.7	16.4
Beginning 92-93	4.6	6.8	17.2	7.9	3.0	2.7
Reviewing for 92-93	11.8	27.1	10.3	13.8	6.0	13.0
Decided not to do	64.9	35.6	44.8	54.6	76.2	67.9
Reorganizing operations:						
Doing Already	38.8	49.2	52.9	46.7	32.7	36.6
Beginning 92-93	7.3	8.2	17.6	8.6	5.9	6.5
Reviewing for 92-93	19.9	26.2	17.6	18.4	19.9	19.5
Decided not to do	34.0	16.4	11.8	26.3	41.5	37.3
Reducing staff:						
Doing Already	22.9	47.5	50.0	31.2	13.2	19.4
Beginning 92-93	3.4	1.6	14.7	6.5	2.9	1.3
Reviewing for 92-93	8.4	16.4	5.9	7.8	5.9	9.7
Decided not to do	65.2	34.4	29.4	54.5	77.9	69.6
Outsourcing academic computing operations:						
Doing Already	4.2	3.2	.0	4.8	3.0	5.6
Beginning 92-93	1.0	1.6	.0	1.4	1.1	.7
Reviewing for 92-93	7.0	4.8	12.9	9.5	4.9	7.3
Decided not to do	87.8	90.3	87.1	84.4	90.9	86.4

Percentages by Campus Category

STRATEGIC PLANNING ISSUES: HOW IMPORTANT OVER NEXT 2-3 YEARS?	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Assessing benefits of existing investments in computing resources.....	5.4	5.1	5.0	5.3	5.4	5.7
Clarifying goals and campus plans for technology resources.....	6.1	5.9	6.1	6.0	6.0	6.1
Providing rewards for faculty to support technology curriculum integration.....	4.6	4.6	4.1	4.7	4.4	4.8
Allocating campus funds to support expanded services.....	5.3	5.1	4.6	5.3	5.3	5.4
Faculty concerns about the benefits of computing in the curriculum.....	5.0	4.9	4.9	5.0	4.9	5.1
Administrative concerns about benefits of computing in the curriculum.....	4.9	4.7	5.0	4.6	4.9	5.0
Developing/strengthening vendor relationships.....	4.5	4.9	4.9	4.6	4.5	4.4
Charging fees to students for desktop computer access.....	3.4	3.8	2.3	3.6	3.1	3.6

Means by Campus Category
(Scale from 1 "Not Important" to 7 "Very Important")

STRATEGIC PLANNING ISSUES: HOW IMPORTANT OVER NEXT 2-3 YEARS?	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Establishing/maintaining campus-wide standards for hardware.....	5.5	5.0	5.2	5.5	5.4	5.7
Establishing/maintaining campus-wide standards for software.....	5.6	4.9	5.4	5.6	5.5	5.7
Integrating computing services with allied service departments.....	5.4	5.2	5.1	5.5	5.3	5.4
Expanding computer networking across the campus.....	6.2	6.4	6.3	6.4	6.0	6.0
Operating a computer resale program for students and faculty.....	3.6	3.8	5.1	3.7	3.9	3.0
Developing budget mechanisms to replace aging equipment on a routine basis.....	5.7	5.6	5.4	5.6	5.9	5.7
Moving applications from mainframe to other/smaller platforms.....	4.7	5.3	5.5	5.0	4.3	4.6

Means by Campus Category
(Scale from 1 "Not Important" to 7 "Very Important")

THIS YEAR'S COMPUTING BUDGET COMPARED TO LAST YEAR'S	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Total academic computing budget:						
Reduced > 5%	15.7	23.4	23.5	22.0	12.2	13.3
Reduced 3-5%	7.4	17.2	2.9	9.1	6.4	5.8
Reduced 1-3%	7.9	7.8	8.8	8.5	5.1	10.0
No change	33.4	26.6	32.4	31.7	35.9	33.3
Increased 1-3%	13.6	17.2	8.8	13.4	14.2	12.9
Increased 3-5%	8.4	3.1	11.8	8.5	9.2	8.4
Increased > 5%	13.6	4.7	11.8	6.7	16.9	16.2
Purchases of desktop computers by academic computing units:						
Reduced > 5%	15.6	17.5	11.8	20.2	13.7	14.9
Reduced 3-5%	7.8	9.5	2.9	9.8	7.2	7.5
Reduced 1-3%	6.5	12.7	11.8	5.5	4.5	7.1
No change	35.6	36.5	38.2	33.7	40.8	31.2
Increased 1-3%	12.2	14.3	11.8	11.0	12.0	12.7
Increased 3-5%	9.0	6.3	8.8	9.8	8.6	9.4
Increased > 5%	13.4	3.2	14.7	9.8	13.4	17.2
All institutional purchases of desktop computers:						
Reduced > 5%	16.0	14.3	11.8	22.1	14.0	15.5
Reduced 3-5%	7.1	11.1	2.9	8.0	7.2	6.1
Reduced 1-3%	7.9	12.7	5.9	8.0	4.8	10.0
No change	31.1	31.7	41.2	28.8	34.5	27.7
Increased 1-3%	14.3	17.5	14.7	15.3	14.7	12.6
Increased 3-5%	10.0	7.9	8.8	8.0	9.6	11.9
Increased > 5%	13.8	4.8	14.7	9.8	15.4	16.1
Did your budget for academic computing experience a mid-year cut/recission?	25.1	56.5	21.2	32.5	15.5	24.0
By what percentage was the budget for academic computing cut mid-year?	11.6	7.5	4.9	10.2	14.3	13.6

Percentages by Campus Category

LIBRARIES AND COMPUTING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Does your campus have desktop computers in the library?	84.0	90.8	91.2	86.1	83.9	80.9
Library patrons use computers for:						
catalog access	54.1	70.8	73.5	62.7	45.1	52.8
database access	51.2	60.0	67.6	57.8	46.7	48.4
word processing	51.2	53.8	47.1	53.0	51.0	50.3
CD ROM access	71.8	78.5	88.2	76.5	75.3	62.8
Has your library catalog been automated?	62.3	92.3	94.1	82.5	51.6	52.5

Percentages by Campus Category

NETWORKING: HOW IMPORTANT ARE THESE ISSUES IN PLANNING FOR NETWORKING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Connecting desktop systems to share departmental or workgroup files.....	5.3	5.5	5.8	5.5	5.1	5.3
Connecting desktop systems to share software resources.....	5.7	5.6	5.8	5.7	5.6	5.8
Supporting instructional labs and clusters.....	6.0	6.0	6.2	6.0	5.9	6.0
Intradepartmental mail systems on LANS.	4.7	5.3	4.9	5.0	4.3	4.8
Campus-wide mail systems on a network..	5.4	6.0	6.1	6.0	5.2	5.1
Linking PCs to larger computing systems	5.5	5.8	5.8	5.9	5.3	5.5
Linking your campus with regional or national networks.....	5.5	6.2	6.4	6.1	5.4	4.9

Means by Campus Category
(Scale from 1 "Not Important" to 7 "Very Important")

NETWORKING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Are network issues more or less important than last year?						
More Important	69.1	78.5	73.5	73.5	65.1	68.1
Less Important	2.0	.0	.0	2.4	3.0	1.6
About the Same	26.8	20.0	26.5	23.5	28.9	27.8
Does your campus have a campus-wide network backbone?	57.9	89.2	88.2	74.1	47.0	50.3
What is the primary medium for your campus backbone?						
Fiber	55.5	67.8	72.4	62.6	69.2	30.3
ISDN	.9	.0	.0	.8	.7	1.8
Ethernet/Coax	29.6	27.1	20.7	25.2	17.8	46.1
Twisted Pair	11.5	3.4	6.9	9.9	10.3	17.6
Other	2.5	1.7	.0	1.5	2.1	4.2
What proportion of your campus buildings have access to the campus backbone?						
Under 25%	15.9	10.3	13.3	14.4	18.8	16.9
26-50%	17.0	20.7	20.0	15.9	23.5	10.5
51-75%	19.0	29.3	13.3	15.2	21.5	17.4
Over 75%	48.1	39.7	53.3	54.5	36.2	55.2
Does your campus charge fees for use of E-mail?	2.0	4.6	8.8	3.0	2.0	.3
Does your campus have access to the Internet?	48.3	90.8	88.2	79.5	39.1	27.8
Does your campus have access to the Bitnet?	42.1	87.7	76.5	74.1	27.0	26.9

Percentages by Campus Category
(*Columns may total more than 100% since responses were not exclusive)

NETWORKING	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Who has access to electronic mail?						
Undergrads	39.8	75.4	91.2	57.2	44.7	13.4
Grad students	25.1	81.5	91.2	47.0	19.7	.3
Faculty	61.2	84.6	97.1	79.5	52.6	51.3
Administrators	67.2	84.6	94.1	82.5	55.3	64.1
Staff	63.6	81.5	94.1	80.7	53.6	57.2
Undergrads assessed fee to use e-mail	.8	.0	2.9	1.2	1.0	.3
Grad students assessed fee to use e-mail	.4	.0	5.9	.6	.3	.0
Faculty assessed fee to use e-mail	1.6	3.1	5.9	3.6	.7	.6
Administrators assessed fee to use e-mail	2.4	7.7	8.8	5.4	.3	.9
Staff assessed fee to use e-mail	1.8	4.6	8.8	4.2	.0	.9
Who has access to Bitnet/Internet						
Undergrads	36.2	80.0	85.3	59.6	36.5	9.7
Grad students	28.3	93.8	88.2	60.2	18.4	1.6
Faculty	56.2	95.4	94.1	91.6	47.0	34.7
Administrators	54.9	95.4	88.2	88.0	44.4	35.9
Staff	50.2	93.8	91.2	83.7	39.1	30.0

Percentages by Campus Category

NETWORKING: WHO HAS ACCESS TO E-MAIL	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Undergrads who use e-mail.....	24.8	23.5	38.1	22.1	25.4	21.5
Grad students who use e-mail.....	28.1	35.0	33.2	25.2	21.9	80.0
Faculty who use e-mail.....	32.9	41.4	44.0	36.3	31.6	26.8
Administrators who use e-mail.....	45.1	46.0	46.2	49.3	32.9	51.8
Staff who use e-mail.....	37.5	37.2	37.4	41.7	27.2	43.6

Mean Percentage by Campus Category

COMPUTING FOR DISABLED STUDENTS	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
How would you describe arrangements for computer access for disabled end-users?						
Centralized access	18.2	15.9	18.2	18.4	19.1	17.8
Segmented access	11.0	19.0	9.1	9.8	3.7	17.1
Mixed access	22.1	34.9	24.2	24.5	7.7	31.7
General access	48.7	30.2	48.5	47.2	69.6	33.3
Is your campus currently reviewing the computing needs of disabled students?						
No plans	45.2	26.2	57.6	41.6	62.7	32.8
No--completed review	14.3	16.4	6.1	13.7	8.1	21.1
Review underway	27.4	41.0	24.2	32.9	14.6	34.4
Review next year	13.1	16.4	12.1	11.8	14.6	11.7

Percentages by Campus Category

HOW IMPORTANT IN PURCHASING DECISIONS ABOUT HARDWARE AND SOFTWARE	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Hardware						
Price/net cost?	6.2	6.1	6.2	6.2	6.3	6.3
Features/added value?	5.7	5.4	5.7	5.7	5.7	5.9
Ready availability of product?	5.5	5.2	5.3	5.3	5.5	5.7
Vendor reputation?	5.7	5.5	5.6	5.6	5.6	5.8
Product reputation?	6.0	5.7	5.8	5.9	6.0	6.1
Prior experience with vendor?	5.7	5.5	5.8	5.5	5.7	5.7
Experience of colleagues?	5.0	5.0	4.8	5.2	4.9	5.1
Vendor service/support?	6.0	5.8	6.1	6.1	5.9	6.1
Sales representatives?	4.2	4.1	4.2	4.1	4.2	4.4
Distributor support?	4.8	4.3	4.6	4.7	4.8	5.0
Software						
Price/net cost?	6.0	5.9	6.2	5.9	6.0	6.1
Features/added value?	5.9	5.6	6.1	5.8	5.9	6.0
Ready availability of product?	5.6	5.4	5.5	5.5	5.5	5.8
Vendor reputation?	5.6	5.5	5.6	5.6	5.5	5.8
Product reputation?	6.1	5.8	6.0	6.0	6.2	6.2
Prior experience with vendor?	5.3	5.4	5.6	5.1	5.3	5.5
Experience of colleagues?	5.2	5.3	4.8	5.4	5.2	5.2
Vendor service/support?	5.8	5.6	5.9	5.9	5.7	5.8
Sales representatives?	3.9	3.8	4.1	3.7	3.8	4.1
Distributor support?	4.5	4.0	4.5	4.4	4.5	4.8

Means by Campus Category
(Scale from 1 "Not Important" to 5 "Very Important")

ORGANIZATION OF CAMPUS COMPUTING AND TECHNOLOGY UNITS	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Our campus is part of a multicampus system with shared computing resources.	33.7	40.0	17.6	44.0	13.5	48.1
Academic and administrative computing on my campus are:						
Separate units	55.6	30.8	41.2	33.7	58.9	70.3
A single unit	40.7	63.1	58.8	62.7	36.8	26.6
Head of academic computing reports to:						
President	6.9	4.6	.0	10.2	6.3	6.9
Provost	33.6	32.3	41.2	38.0	40.8	24.1
Vice president	29.1	55.4	55.9	38.6	23.4	21.6
Dean	26.3	1.5	2.9	10.2	25.3	43.1
Other	.3	.0	.0	.6	.3	.3
Academic computing has been reorganized in past two years	34.4	38.5	29.4	34.3	32.6	35.9
We anticipate reorganization of academic computing in next two years	34.0	41.5	29.4	27.7	32.2	37.8
Head of library reports to:						
President	4.5	3.1	2.9	3.6	4.6	5.3
Provost	48.6	75.4	67.6	63.9	52.3	29.7
Vice president	14.1	12.3	17.6	20.5	9.5	15.0
Dean	28.1	3.1	5.9	10.8	28.6	44.1
Other	.2	.0	.0	.0	.3	.3
Library services have been reorganized in past two years	24.0	13.8	11.8	21.7	21.7	30.6
We anticipate reorganization of library services in next two years	22.6	16.9	8.8	17.5	24.3	26.3

Percentages by Campus Category

ORGANIZATION OF CAMPUS COMPUTING AND TECHNOLOGY UNITS	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
Level of involvement of our chief academic officer in instructional technology:						
Not interested-involved.....	8.8	11.3	20.6	10.5	9.8	5.1
Interested.....	25.3	40.3	44.1	27.2	25.8	18.8
Somewhat involved.....	27.5	25.8	23.5	30.2	27.5	26.8
Directly involved.....	38.5	22.6	11.8	32.1	36.9	49.2
How well does your campus deal with the 'life cycle' issues of desktop computers						
One-time allocation.....	47.6	62.3	55.9	47.3	47.8	43.8
Developing plan.....	35.6	26.2	26.5	38.8	34.2	38.0
Have Plan.....	16.8	11.5	17.6	13.9	18.0	18.2

Percentages by Campus Category

STUDENTS/FACULTY PREPARATION FOR USE OF COMPUTERS IN INSTRUCTION & SCHOLARSHIP	ALL CAMPUSES	Public University	Private University	4-Yr Public College	4-Yr Private College	2-Yr Public College
How well train in tech. challenges:						
for students in bio/phys. sci.?.....	3.4	3.5	3.7	3.6	3.5	3.3
for students in business?.....	3.8	3.9	3.9	3.9	3.6	4.0
for students in education?.....	3.2	3.2	2.9	3.3	3.3	3.1
for students in engineering?.....	3.7	4.4	4.0	3.7	3.5	3.6
for students in fine/perf. arts?.....	2.9	2.8	3.2	2.9	2.9	3.0
for students in humanities?.....	3.0	2.6	3.2	2.9	3.0	3.1
for students in social science?.....	3.1	3.0	3.6	3.1	3.3	3.0
Faculty preparation for instruction in:						
bio/phys. sci.?.....	3.5	3.4	3.6	3.5	3.5	3.4
business?.....	3.7	3.8	3.5	3.7	3.5	3.9
education?.....	3.0	3.0	2.7	3.1	2.9	3.0
engineering?.....	3.6	4.2	3.9	3.5	3.4	3.7
fine/perf. arts?.....	2.7	2.6	3.0	2.7	2.6	2.9
humanities?.....	2.7	2.5	2.8	2.8	2.7	2.8
social science?.....	2.9	2.9	3.2	3.0	3.0	2.8
Faculty preparation for scholarship in:						
bio/phys. sci.?.....	3.5	3.9	4.0	3.6	3.5	3.3
business?.....	3.5	3.9	4.0	3.6	3.3	3.5
education?.....	3.0	3.3	2.9	3.1	2.9	2.9
engineering?.....	3.5	4.4	4.1	3.4	3.3	3.3
fine/perf. arts?.....	2.7	2.8	3.0	2.7	2.6	2.8
humanities?.....	2.8	2.8	3.1	2.9	2.7	2.8
social science?.....	3.0	3.2	3.7	3.1	3.1	2.8

Means by Campus Category
(Scale from 1 "Poor" to 5 "Excellent")

CAMPUS COMPUTING 1992

The EDUCOM•USC Survey of Desktop Computing in Higher Education

Appendices

A. Methodology

B. Survey Form

C. Participating Institutions

Appendix A

Methodology

The 1992 EDUCOM-USC Survey of Desktop computing was designed to collect information about campus planning, policies, and procedures affecting the use of desktop computers (i.e., personal computers and workstations) from colleges and universities in the United States (including Alaska and Hawaii).

The 1992 survey was mailed to some 2500 campuses in the in late Spring, 1992. Questionnaires were sent to all two- and four-year colleges and universities, with the following exceptions. Small branch campuses of multi-campus districts enrolling only a few hundred students and some two- and four-year institutions that admit less than one hundred students annually were omitted from the survey sample, as were proprietary schools.

Questionnaires were mailed to the institution's EDUCOM representative, if the campus was a member of EDUCOM, or to the director of academic computing. In those instances where it was not possible to identify, by name, an individual in the role of director of academic or campus computing, the questionnaire was then mailed to the chief academic officer of the institution.

A second wave of survey instruments was mailed to nonresponding institutions in July. A total of 970 campuses returned completed and usable questionnaires by mid-September, the closing date for data analysis. The number of participating campuses are listed below, by campus type:[1]

Public Research Universities	71
Private Research Universities	36
Public Four-Year Colleges	171
Private Four-Year Colleges	323
Public Two-Year Colleges	328
Private Two-Year Colleges	41

The overall response rate to the survey was about 38%. Within some segments of campus types, however, the response rate was higher. Among public two-year colleges, the response rate (about 35%) is very good for this type of survey and reflects a rich array of institutional responses. Similarly, while fewer than half of the nation's private four-year colleges responded to the survey, the data from these institutions is nonetheless varied and consequently rich with information about computing practices and policies in these types of institutions. The small number of private two-year campuses responding to the survey once again precluded their being included in this report.

[1] The institutional typology presented here and used in the survey analysis and report reflects a variation on the widely-used Carnegie model (Carnegie Advancement for the Foundation of Teaching, Princeton, NJ). This model has also been used by UCLA's Higher Education Research Institute for the annual American Council on Education-UCLA Cooperative Institutional Research Program Survey of Entering Freshmen.

EDUCOM•USC NATIONAL SURVEY OF DESKTOP COMPUTER USE IN HIGHER EDUCATION

SPRING 1992

Dear Colleague:

This is the third annual survey, part of a national project focused on campus policies, plans, and procedures affecting desktop computing in two- and four-year colleges and universities. Your responses will contribute to a better understanding of the ways campuses across the country are planning for and using desktop computers.

Please take a few minutes to complete this questionnaire. All responses will be treated in a confidential manner. You will receive a copy of the survey results in the Fall.

Kenneth C. Green
Project Director

MAILING LABEL

Please attach a business card with the correct name, title, and address of survey respondent. Updated addresses will be used to send you a copy of the survey results.

Please respond to all questions based on institutional policies, i.e., policies that apply broadly to students, faculty, administrators and staff in all units of your institution.

A. GENERAL CAMPUS POLICIES ABOUT DESKTOP COMPUTING

1. Does your campus have a formal policy promoting or mandating computers/computing resources for
   curriculum utilization? ① no ② yes
   undergraduates? ① no ② yes
   graduate students? ① no ② yes
2. Does your institution have a *computer instruction* or *computer competency* requirement for all undergraduates?
   ① no ② yes
3. Does your campus have a formal policy about the *confidentiality of computer data?*
   ① no ② yes
4. Does your campus have a formal policy regarding the *development of software* by faculty and staff?
   ① no ② yes
5. Please check the *Operating Systems* recommended or supported by your institution:
   ❑ Apple II ❑ MS-DOS/PC DOS
   ❑ Macintosh ❑ Windows
   ❑ UNIX ❑ OS/2
   ❑ Amiga O/S ❑ None (my campus *does not* recommend a specific operating system.)
6. Does your institution *require* or *strongly recommend* microcomputer ownership? *(please check all that apply)*
   ❑ no
   ❑ yes, for students in specific disciplines or programs
   ❑ yes, for students in individual academic units or schools
   ❑ yes, for all students
7. Does your institution (or individual units or programs) specifically recommend a particular brand or products for
   students? ① no ② yes
   faculty? ① no ② yes
   administrators/staff? ① no ② yes

If you answered "yes" to any part of #7, please go on to #8; otherwise, please go on to #9.

8. Please check the brand(s)/kinds(s) of *desktop* computer system(s) generally recommended by your institution:

Apple	IBM & IBM Compatibles	UNIX Systems
❑ Macintosh Classic/II	❑ AT-level/'286 units	❑ DEC
❑ Macintosh SI/LCII	❑ IBM PS/2 systems	❑ HP/Apollo
❑ Mac II series(ci/fx)	❑ '386/'386SX systems	❑ IBM
❑ Macintosh Quadra	❑ '486/'486SX systems	❑ NeXT
	❑ other:_____	❑ Sun
		❑ other:_____

please go on to the next page ➡

B. Current Microcomputer and Desktop Computer Facilities

9. What was the total *headcount* enrollment on your campus Spring 1992? |__|__|__|__|__|

10. What is your *best estimate* of the total number of *institutionally-owned* desktop computers and workstations on your campus as of May, 1992? (Please include systems in faculty offices and in labs, clusters, classrooms, residence halls, etc.) Microcomputers |__|__|__|__|__| Workstations |__|__|__|__|__|

11. What is your best estimate of the total number of *personally-owned* desktop computers used on your campus as of May, 1992? (Include personally purchased systems owned by students and faculty.) |__|__|__|__|__|

12. What is your best estimate of the proportion of individuals in your campus community who have or own desktop computers?

students	|__|__| %
faculty	|__|__| %
administrators/staff	|__|__| %

13. Estimated total number of desktop units purchased by:

	1991-92	1992-93
students	|__|__|__|__|	|__|__|__|__|
faculty (personal & office/project use)	|__|__|__|__|	|__|__|__|__|
administrators/staff (personal & office/project use)	|__|__|__|__|	|__|__|__|__|
campus labs, clusters & other instructional use	|__|__|__|__|	|__|__|__|__|

14. Total number of *desktop computer labs, clusters,* and *classrooms* on your campus as of May 1992? |__|__|__|

15. How many of these computer labs/clusters/classrooms are specifically dedicated for use by individual departments or units (e.g., writing program, engineering, social science)? |__|__|__|

16. Total number of *microcomputers and workstations* in *all* the labs/classrooms/clusters on your campus as of May, 1992? Microcomputers |__|__|__|__|__| Workstations |__|__|__|__|__|

17. Is there a specific charge *to students* for use of the labs? (Please mark all that apply.)
    - ❑ no
    - ❑ yes, included in student fees
    - ❑ yes, included in course fees
    - ❑ yes, hourly rates
    - ❑ yes, for printing

18. Who may reserve lab facilities? (Please mark all that apply.)
    - ❑ no reservation policy
    - ❑ labs may not be reserved (permanent open-access facilities)
    - ❑ individual students for their own work
    - ❑ groups of students for special projects
    - ❑ faculty for classes or seminars
    - ❑ off-campus groups for special seminars

C. Hardware Acquisition Policies and Procedures

19. Does your institution have a special pricing or resale agreement with one or more *hardware* vendors?
    - ① no, we do not have any kind of computer resale program.
    - ② no, we do not have a special discount program although we do sell computers through an on-campus facility.
    - ③ yes, for hardware sold through the campus bookstore.
    - ④ yes, for hardware sold through a special campus center or outlet *not* affiliated with our bookstore.
    - ⑤ yes, for hardware sold by special agreement with an off-campus dealer.

20. Does your institution *require* computer buyers to purchase software as part of the resale program?
    ① no ② yes

21. Does your institution *encourage* computer buyers to purchase software as part of the resale program?
    ① no ② yes

22. Does your institution offer financial assistance to students and/or faculty to purchase computer hardware?
    ① no (go on to #23) ② yes, please check all types of assistance offered:

Type of Assistance	Students	Faculty
Loans	❑	❑
Grants	❑	❑
Financial aid (students only)	❑	

please go on to the next page ➡

D. Software Acquisition and Utilization Issues

23. Does your institution have a special pricing or resale agreement with one or more software vendors?
    - ① no, we do not have a software resale program.
    - ② no, we do not have a special discount program although we do sell software through an on-campus facility.
    - ③ yes, for software sold through the campus bookstore.
    - ④ yes, for software sold through a special campus center or outlet *not* affiliated with our bookstore.
    - ⑤ yes, for software sold by special agreement with an off-campus dealer.

24. Does your institution have policies and/or procedures regarding the *duplication of copyrighted software* and *software piracy?* (Please mark all that apply.)
    - ❑ no organized institutional activity (skip to #25)
    - ❑ information in the student handbook
    - ❑ information in the faculty handbook
    - ❑ information in the staff handbook
    - ❑ discussion in training classes
    - ❑ discussion in new student orientation
    - ❑ general promotional effort on campus
    - ❑ discussion in faculty orientation
    - ❑ discussion in staff orientation
    - ❑ information distributed with computer purchases
    - ❑ potential for sanctions against students
    - ❑ potential for sanctions against faculty
    - ❑ potential for sanctions against staff

25. Does your institution have a written policy regarding the *duplication of copyrighted software/software piracy?*
    - ① no
    - ② no, but under development
    - ③ yes (effective date: _____)

26. Has your institution reviewed the EDUCOM Code regarding the duplication of copyrighted software?
    - ① no
    - ② yes, but we decided not to adopt or endorse it here.
    - ③ yes, and we have endorsed it or modified it as part of our institutional policy.

E. Academic & Instructional Computing Policies and Procedures

27. Does your campus have a formal plan for integrating desktop computers into the curriculum?
    ① no ② yes
28. Does your campus have one or more formal projects for developing desktop instructional software/courseware?
    ① no ② yes
29. Does your campus provide any formal support or assistance (e.g., funding, release time, technical assistance) to help faculty who wish to develop *instructional* software/courseware?
    ① no ② yes
30. Does your campus provide any formal support or assistance (e.g., funding, release time, technical assistance) to assist faculty who may wish to develop software to assist their *research*?
    ① no ② yes
31. Does your campus have a policy or program for rewarding courseware development or providing incentives for faculty to develop instructional software/courseware?
    ① no ② yes
32. Does your campus have a royalty-sharing program for faculty who develop instructional software/courseware using campus resources and/or staff?
    ① no ② yes
33. Does your campus maintain a library of academic courseware for faculty review and evaluation?
    ① no ② yes
34. Does your campus have one or more agreements or licenses for on-campus duplication and distribution of desktop computer software products?
    ① no ② yes

F. Computing for Disabled Students

35. How would you describe the organizational arrangements for providing computer access for disabled end-users?
    - ① *centralized* access, through main and/or departmental computer centers.
    - ② *segmented* access, through a special office specifically charged to assist disabled end-users.
    - ③ *mixed* access, through both a special office and also through main and/or departmental computer centers.
    - ④ *general access*, with no formal policy or procedure(s) for specifically serving disabled students.

36. Is your campus currently reviewing the computing needs of disabled students?
    - ① no, and we have no plans to do so in the next year or so.
    - ② no, because we recently completed this type of review.
    - ③ yes, a review is now underway.
    - ④ yes, a review is planned for the coming academic year (1992-1993).

G. Future Issues Affecting Campus Computing

37. As you think about the future of computing at your institution, please indicate how *important* you see the following items in the overall campus computing environment and computing policy over the next 2-3 years.

	Not Important						*Very Important*
Operating System/Interface/Development							
MS-DOS/PC-DOS	①	②	③	④	⑤	⑥	⑦
Windows	①	②	③	④	⑤	⑥	⑦
OS/2	①	②	③	④	⑤	⑥	⑦
Macintosh	①	②	③	④	⑤	⑥	⑦
UNIX	①	②	③	④	⑤	⑥	⑦
Motif	①	②	③	④	⑤	⑥	⑦
Open Look	①	②	③	④	⑤	⑥	⑦
New Wave	①	②	③	④	⑤	⑥	⑦
NeXTStep	①	②	③	④	⑤	⑥	⑦
Graphical User Interfaces	①	②	③	④	⑤	⑥	⑦
Solaris	①	②	③	④	⑤	⑥	⑦
Hardware							
Laptop computers	①	②	③	④	⑤	⑥	⑦
Portable computers	①	②	③	④	⑤	⑥	⑦
'386 and '386 SX CPUs	①	②	③	④	⑤	⑥	⑦
'486 and '486 SX CPUs	①	②	③	④	⑤	⑥	⑦
Macintosh	①	②	③	④	⑤	⑥	⑦
IBM's MicroChannel Bus	①	②	③	④	⑤	⑥	⑦
EISA Bus	①	②	③	④	⑤	⑥	⑦
UNIX Workstations	①	②	③	④	⑤	⑥	⑦
Diskless Workstations	①	②	③	④	⑤	⑥	⑦
RISC-based CPUs	①	②	③	④	⑤	⑥	⑦
Resale and Distribution							
Hardware resale contracts	①	②	③	④	⑤	⑥	⑦
Software resale contracts	①	②	③	④	⑤	⑥	⑦
Software site licensing	①	②	③	④	⑤	⑥	⑦

	Not Important						*Very Important*
Networking							
Local area networks	①	②	③	④	⑤	⑥	⑦
Campus-wide networks	①	②	③	④	⑤	⑥	⑦
Merging data & telecommunication networks	①	②	③	④	⑤	⑥	⑦
Connecting PC- LANS to campus-wide networks	①	②	③	④	⑤	⑥	⑦
Access to intercampus networks	①	②	③	④	⑤	⑥	⑦
Electronic mail	①	②	③	④	⑤	⑥	⑦
Network fax	①	②	③	④	⑤	⑥	⑦
User Support & Service							
User support & training	①	②	③	④	⑤	⑥	⑦
Charging users for services now provided at little or no cost	①	②	③	④	⑤	⑥	⑦
Upgrading aging hardware	①	②	③	④	⑤	⑥	⑦
Upgrading aging software	①	②	③	④	⑤	⑥	⑦
Instructional Applications							
Developing instructional software	①	②	③	④	⑤	⑥	⑦
Using instructional software in classes	①	②	③	④	⑤	⑥	⑦
Using instructional software as a supplement to classes	①	②	③	④	⑤	⑥	⑦
Computer-based classroom presentation facilities	①	②	③	④	⑤	⑥	⑦

38. Many campuses find themselves facing declining enrollments, reduced financial resources, and increasing costs. How is your campus addressing these issues as you view technology needs and services??

	Doing This Already	*Beginning in '92'-93 Year*	*Reviewing For '92'-93 Year*	*Decided Not To Do This*
Reducing purchases of computer technology	①	②	③	④
Charging fees to depts. and service units (e.g., networking, printing)	①	②	③	④
Charging fees to individual users (e.g., access, printing)	①	②	③	④
Exploring less expensive hardware options	①	②	③	④
Exploring less expensive software options	①	②	③	④
Leasing rather than buying hardware	①	②	③	④
More active recycling of older equipment to other departments and units	①	②	③	④
Consortial purchasing programs	①	②	③	④
Vendor financing	①	②	③	④
Reducing hours in public access facilities	①	②	③	④
Reducing services (e.g., less consulting)	①	②	③	④
Reorganizing operations (e.g., combining units to coordinate staffing)	①	②	③	④
Reducing staff	①	②	③	④
Outsourcing academic computing	①	②	③	④

please go on to the next page ➡

H. Strategic and Budget Planning Issues

39. As you look at the future of computing on your campus, please indicate how important the following computing/technology issues will be in the overall campus computing environment over the next 2-3 years.

	Not Important						*Very Important*
Assessing the benefits of existing investments in computing and technology resources	①	②	③	④	⑤	⑥	⑦
Clarifying goals and campus plans for technology resources	①	②	③	④	⑤	⑥	⑦
Providing incentives and rewards for faculty to support technology integration into the curriculum	①	②	③	④	⑤	⑥	⑦
Allocating campus funds to support expanded services	①	②	③	④	⑤	⑥	⑦
Faculty concerns about the benefits of computing in the curriculum	①	②	③	④	⑤	⑥	⑦
Administrative concerns about the benefits of computing in the curriculum	①	②	③	④	⑤	⑥	⑦
Developing/strengthening vendor relationships	①	②	③	④	⑤	⑥	⑦
Charging fees to students for desktop computer access	①	②	③	④	⑤	⑥	⑦
Establishing/maintaining campus-wide standards for *hardware*	①	②	③	④	⑤	⑥	⑦
Establishing/maintaining campus-wide standards for *software*	①	②	③	④	⑤	⑥	⑦
Integrating computing services with allied service departments (for example, library services)	①	②	③	④	⑤	⑥	⑦
Expanding computer networking across the campus	①	②	③	④	⑤	⑥	⑦
Operating a computer resale program for students and faculty	①	②	③	④	⑤	⑥	⑦
Developing budget mechanisms to replace aging equipment on a routine basis	①	②	③	④	⑤	⑥	⑦
Moving applications from mainframe to other/smaller platforms (workstations, PCs, etc.)	①	②	③	④	⑤	⑥	⑦

40. Compared to last year (1991-92), how do you expect this year's budget to change with regard to academic computing overall, and to academic computing and institutional purchases of desktop computers?

	Reduced > 5%	*Reduced 3-5%*	*Reduced 1-3%*	*No Change*	*Increased 1-3%*	*Increased 3-5%*	*Increased >5%*
Total academic computing budget	①	②	③	④	⑤	⑥	⑦
Purchases of desktop computers by academic computing units	①	②	③	④	⑤	⑥	⑦
All institutional purchases of desktop computers	①	②	③	④	⑤	⑥	⑦

41. Did your budget for academic computing experience a mid-year cut or recission during 1991-1992?
① no ② yes If yes, by what percentage? |__|__|%

I. Libraries and Computing

42. Does your campus have desktop computers in the library?
① no (skip to next question #43) ② yes (go on to question below)
If yes, how do library users make use of these computers (please check all that apply):
- ❑ catalog access
- ❑ word processing
- ❑ database access
- ❑ CD ROM access

43. Has your library catalog been automated?
① no (go on to next question # 44) ② yes (go on to question #45)

44. If NO: Does your campus have plans to automate the library card catalog in the next two years?
① no (go on to question #46) ② yes

45. If YES:
What system or vendor have you used to automate your card catalog? _____
Is the Card Catalog CPU located ① in the library? ② in the campus computer center? ③ elsewhere?

46. How does your library/library system provide access to bibliographic citation indexes?
- ❑ print
- ❑ database on a campus CPU
- ❑ CD ROM
- ❑ other: _____
- ❑ dial-up access to off-campus *commercial* databases
- ❑ dial-up access to off-campus *educational* databases

please go on to the next page ➨

J. NETWORKING

47. How important are the following issues in discussions about and planning for networking on your campus?

	Not Important						*Very Important*
Connecting desktop systems to share departmental or workgroup files	①	②	③	④	⑤	⑥	⑦
Connecting desktop systems to share software resources	①	②	③	④	⑤	⑥	⑦
Supporting instructional labs and clusters	①	②	③	④	⑤	⑥	⑦
*Intra*departmental mail systems on LANS	①	②	③	④	⑤	⑥	⑦
Campus-wide mail systems on a network	①	②	③	④	⑤	⑥	⑦
Linking PCs to larger computing systems	①	②	③	④	⑤	⑥	⑦
Linking your campus with regional or national networks	①	②	③	④	⑤	⑥	⑦

48. Would you say that network issues are more or less important than last year, or about the same?
① More important ② Less important ③ About the same

49. Does your campus have a campus-wide network backbone?
① no (go on to question #52) ② yes

50. What is the primary medium for your campus backbone?
① Fiber ③ Ethernet/Coax ⑤ Other:_____
② ISDN ④ Twisted Pair

51. What proportion of your campus buildings have access to the campus backbone?
① Under 25%
② 26-50%
③ 51-75%
④ Over 75%

52. Who has access to electronic mail accounts at your campus? (Please check all that apply and indicate your estimate of the percentage of these groups using e-mail.)

❑ Undergrad Students	percent of undergrads who use e-mail?	____ %
❑ Grad Students	percent of grads who use e-mail?	____ %
❑ Faculty	percent of faculty who use e-mail?	____ %
❑ Administrators	percent of administrators who use e-mail?	____ %
❑ Staff	percent of staff who use e-mail?	____ %

53. Does your campus charge fees for use of E-mail?
① no (skip to #55) ② yes

54. Which users are assessed a fee for using E-mail?
❑ Undergraduate student
❑ Graduate students
❑ Faculty
❑ Administrators
❑ Staff

55. Does your campus have access to the Internet or Bitnet?
Internet ① no ② yes *Bitnet* ① no ② yes

56. Who is allowed to use the connections to Internet or Bitnet?
❑ Undergraduate students
❑ Graduate students
❑ Faculty
❑ Administrators
❑ Staff

K. VENDOR ASSESSMENT

57. What is your assessment of the companies that sell desktop (i.e., personal computer and workstation) systems and software to the higher education market?

Ratings: ① Strongly Disagree (SD) ② Disagree ③ Agree ④ Strongly Agree (SA)

	Has Appropriate Products for Campus Users	*Understands Computing Issues Affecting My Campus*	*Will Play an Important Role in our Computing Plans for the Next 2-3 Years*
	SD D A SA	SD D A SA	SD D A SA
Hardware Vendors			
Apple	① ② ③ ④	① ② ③ ④	① ② ③ ④
AT&T	① ② ③ ④	① ② ③ ④	① ② ③ ④
Commodore/Amiga	① ② ③ ④	① ② ③ ④	① ② ③ ④
Compaq	① ② ③ ④	① ② ③ ④	① ② ③ ④
DEC (Digital)	① ② ③ ④	① ② ③ ④	① ② ③ ④
Dell	① ② ③ ④	① ② ③ ④	① ② ③ ④
HP/Apollo	① ② ③ ④	① ② ③ ④	① ② ③ ④
IBM	① ② ③ ④	① ② ③ ④	① ② ③ ④
NeXT	① ② ③ ④	① ② ③ ④	① ② ③ ④
Sun MicroSystems	① ② ③ ④	① ② ③ ④	① ② ③ ④
Toshiba	① ② ③ ④	① ② ③ ④	① ② ③ ④
Zenith	① ② ③ ④	① ② ③ ④	① ② ③ ④
Software/Network Vendors			
Aldus	① ② ③ ④	① ② ③ ④	① ② ③ ④
Auto-Desk	① ② ③ ④	① ② ③ ④	① ② ③ ④
Borland	① ② ③ ④	① ② ③ ④	① ② ③ ④
Claris	① ② ③ ④	① ② ③ ④	① ② ③ ④
Computer Associates	① ② ③ ④	① ② ③ ④	① ② ③ ④
Lotus	① ② ③ ④	① ② ③ ④	① ② ③ ④
Microsoft	① ② ③ ④	① ② ③ ④	① ② ③ ④
Minitab	① ② ③ ④	① ② ③ ④	① ② ③ ④
Novell	① ② ③ ④	① ② ③ ④	① ② ③ ④
Oracle	① ② ③ ④	① ② ③ ④	① ② ③ ④
SAS	① ② ③ ④	① ② ③ ④	① ② ③ ④
SPSS	① ② ③ ④	① ② ③ ④	① ② ③ ④
Systat	① ② ③ ④	① ② ③ ④	① ② ③ ④

58. Please rate the importance of following factors in your purchasing decisions about hardware and software.

	Hardware							Software						
	Not Important						*Very Important*	*Not Important*						*Very Important*
Price/net cost	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Features/added value	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Ready availability of product	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Vendor reputation	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Product reputation	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Prior experience with vendor	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Experience of colleagues at comparable campuses	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Vendor service/support	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Sales representatives	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦
Distributor support	①	②	③	④	⑤	⑥	⑦	①	②	③	④	⑤	⑥	⑦

L. ORGANIZATION OF CAMPUS COMPUTING AND TECHNOLOGY UNITS

59. Is your campus part of a multicampus system with shared computing resources: ① no ② yes

60. Academic and administrative computing on your campus are: ① separate units ② one single unit

61. How does your campus coordinate academic computing and library operations? The heads of each unit report to:

Academic Computing	*Library*
① president	① president
② provost (chief academic officer)	② provost (chief academic officer)
③ vice president, (e.g., vp for information services)	③ vice president, (e.g., vp for information technology)
④ dean	④ dean

62. Has your institution reorganized computing or library services within the past two years?
Academic Computing ① no ② yes *Library* ① no ② yes

63. Do you anticipate a reorganization of computing or library services within the next two years?
Academic Computing ① no ② yes *Library* ① no ② yes

64. Is your chief academic officer directly involved (or interested) in campus planning for instructional technology?
① not interested or involved ② interested ③ somewhat involved ④ directly involved

65. How does your institution deal with the "life cycle" issues affecting the institutional purchase (and upgrading/replacement) of desktop computers for faculty, classrooms, clusters, and labs?
① Most institutional purchases of desktop systems are acquired through a special one-time allocation or appropriation.
② Although we generally purchase equipment on a one-time allocation, we are developing a budget mechanism (or budget planning model) to help us routinely "acquire and retire" new technology.
③ We have a budget mechanism (or budget planning model) to help us routinely "acquire and retire" new technology.

66. From your perspective, how well does your institution prepare your students (i.e., undergraduates) for the technology skills they will need and technology challenges they will encounter over the next decade?

Academic Field/Program	*Poor*				*Excellent*
biological & physical sciences	①	②	③	④	⑤
business	①	②	③	④	⑤
education	①	②	③	④	⑤
engineering	①	②	③	④	⑤
fine & performing arts	①	②	③	④	⑤
humanities	①	②	③	④	⑤
social science	①	②	③	④	⑤

67. From your perspective, how well prepared are the faculty at your institution to use technology as a resource for instruction and scholarship?

For Instruction	*Poor*				*Excellent*
biological & physical sciences	①	②	③	④	⑤
business	①	②	③	④	⑤
education	①	②	③	④	⑤
engineering	①	②	③	④	⑤
fine & performing arts	①	②	③	④	⑤
humanities	①	②	③	④	⑤
social science	①	②	③	④	⑤

For Scholarship	*Poor*				*Excellent*
biological & physical sciences	①	②	③	④	⑤
business	①	②	③	④	⑤
education	①	②	③	④	⑤
engineering	①	②	③	④	⑤
& performing arts	①	②	③	④	⑤
humanities	①	②	③	④	⑤
social science	①	②	③	④	⑤

THANK YOU FOR YOUR ASSISTANCE!

PLEASE FOLD AND MAIL IN THE ENCLOSED POSTAGE-PAID ENVELOPE

Appendix C

Participating Institutions

Abilene Christian University, TX
Adams State College, CO
Adrian College, MI
Alabama Agricultural and Mechanical Univ., AL
Alamance Community College, NC
Albertus Magnus College, CT
Albright College, PA
Albuquerque Technical Vocational Institute, NM
Alfred University, NY
Allegany Community College, MD
Allen County Community College, KS
Allentown College of St. Francis de Sales, PA
Alma College, MI
Alpena Community College, MI
Alvernia College, PA
Alverno College, WI
Amarillo College, TX
Amber University, TX
American River College, CA
American University, DC
Ancilla College, IN
Angelina College, TX
Anoka-Ramsey Community College, MN
Anson Community College, NC
Antelope Valley College, CA
Appalachian State University, NC
Arapahoe Community College, CO
Arizona State University, AZ
Arkansas State University, AR
Arkansas Tech University, AR
Asbury College, KY
Asheville-Buncombe Tech. Community College, NC
Ashland University, OH
Atlantic Christian College, NC
Atlantic Community College, NJ
Auburn University at Montgomery, AL
Auburn University-Main Campus, AL
Augsburg College, MN
Augusta College, GA
Augustana College, IL
Austin Community College, MN
Avila College, MO
Azusa Pacific University, CA
Babson College, MA
Bakersfield College, CA
Ball State University, IN
Bard College, NY
Barry University, FL
Barstow College, CA
Bartlesville Wesleyan Co[illegible]e, OK
Baruch College of the CUNY, NY
Bates College, ME
Bay de Noc Community College, MI
Beaufort County Community College, NC
Bee County College, TX
Bellarmine College, KY
Bellevue Community College, WA
Belmont Abbey College, NC
Belmont Technical College, OH
Beloit College, WI
Bemidji State University, MN
Benedict College, SC
Bennington College, VT
Berea College, KY
Bergen Community College, NJ
Berry College, GA
Bethany College, KS
Bethany Lutheran College, MN
Bethel College, MN
Bethune-Cookman College, FL
Big Bend Community College, WA
Biola University, CA
Birmingham Southern College, AL
Bishop Clarkson College, NE
Black Hawk College-East Campus, IL
Black Hills State University, SD
Blackhawk Technical College, WI
Bladen Community College, NC
Blue Mountain Community College, OR
Bluefield College, VA
Boise State University, ID
Boston College, MA
Bowdoin College, ME
Bowling Green State University, OH
Bradley University, IL
Brazosport College, TX
Brescia College, KY
Brevard College, NC
Brevard Community College, FL
Briar Cliff College, IA
Brown University, RI
Brunswick Community College, NC
Bryn Mawr College, PA
Bucknell University, PA
Buena Vista College, IA
Burlington County College, NJ
Butler County Community College, KS
Butler County Community College, PA
Cabrillo College, CA
Cabrini College, PA

Calif Polytechnic State Univ, San Luis Obispo, CA
Calif State Univ, Fullerton, CA
Calif State Univ, Hayward, CA
Calif State Univ, Long Beach, CA
Calif State Univ, Los Angeles, CA
Calif State Univ, San Bernardino, CA
Calif State Univ, Stanislaus, CA
California Institute of the Arts, CA
California Lutheran University, CA
California Univ. of Pennsylvania, PA
Cameron University, OK
Campbellsville College, KY
Canisius College, NY
Carleton College, MN
Carlow College, PA
Carroll College, WI
Carson-Newman College, TN
Carteret Community College, NC
Casco Bay College, ME
Casper College, WY
Castleton State College, VT
Catawba College, NC
Catawba Valley Community College, NC
Cayuga County Community College, NY
Cazenovia College, NY
Cedar Crest College, PA
Cedarville College, OH
Centenary College of Louisiana, LA
Center for Creative Studies, College of Art and Design, MI
Central Arizona College, AZ
Central Carolina Community College, NC
Central Oregon Community College, OR
Central Piedmont Community College, NC
Central State University, OK
Central University of Iowa, IA
Central Virginia Community College, VA
Central Wesleyan College, SC
Chadron State College, NE
Chaffey College, CA
Chatham College, PA
Chattahoochee Valley State Community College, AL
Chestnut Hill College, PA
Christian Heritage College, CA
Christopher Newport College, VA
Cincinnati Bible College, OH
City College of San Francisco, CA
City Colleges of Chicago, Malcolm X College, IL
City Colleges of Chicago, Wilbur Wright College, IL
Clark College, GA
Clark Colleg , WA
Clark State Community College, OH
Clatsop Community College, OR
Clayton State College, GA
Cleveland State Community College, TN
Cleveland State University, OH
Clinton Community College, IA
Coastline Community College, CA
Cochise College, AZ
Cogswell College North, WA
Coker College, SC
Colby Community College, KS
Colby-Sawyer College, NH
College Misericordia, PA
College of Aeronautics, NY
College of Charleston, SC
College of Idaho, ID
College of New Rochelle, NY
College of Saint Benedict, MN
College of Southern Idaho, ID
College of St. Catherine, MN
College of St. Scholastica, MN
College of Staten Island of CUNY, NY
College of The Albemarle, NC
College of the Atlantic, ME
College of the Canyons, CA
College of the Desert, CA
College of William and Mary, VA
College of Wooster, OH
Colorado College, CO
Colorado Technical College, CO
Columbia Basin College, WA
Columbia College, IL
Columbia College, MO
Columbia State Community College, TN
Columbus College, GA
Columbus State Community College, OH
Community College of Allegheny County, Allegheny Campus, PA
Community College of Allegheny County, South Campus, PA
Community College of Aurora, CO
Community College of Beaver County, PA
Community College of the Finger Lakes, NY
Concordia College, IL
Concordia College, MN
Concordia College, OR
Contra Costa College, CA
Cooper Union, NY
Copiah-Lincoln Community College, MS
Cornell College, IA
Corpus Christi State University, TX
Cosumnes River College, CA
Covenant College, GA
Craven Community College, NC
Creighton University, NE
Cuesta College, CA
Culver-Stockton College, MO
CUNY - Hostos Community College, NY
CUNY - Hunter College, NY
CUNY - LaGuardia Community College, NY
CUNY - Manhattan Community College, NY
Curry College, MA
Cypress College, CA
D'Youville College, NY
D-Q University, CA
Dakota State University, SD
Dalton College, GA
Danville Community College, VA
Davidson College, NC
Daytona Beach Community College, FL
De Anza College, CA
Defiance College, OH
Delaware Valley College, PA
Delta State University, MS

DeVry Institute of Technology, MO
DeVry Institute of Technology, OH
Dickinson State University, ND
Doane College, NE
Dodge City Community College, KS
Donnelly College, KS
Drake University, IA
Drew University, NJ
Durham Technical Community College, NC
Dutchess Community College, NY
East Central Junior College, MS
East Georgia College, GA
East Texas State University, TX
Eastern Kentucky University, KY
Eastern Mennonite College, VA
Eastern Michigan University, MI
Eastern Montana College, MT
Eastern New Mexico University, NM
Eastern New Mexico University, Roswell, NM
Eastern Oregon State College, OR
Eastern Shore Community College, VA
Eastern Washington University, WA
Eckerd College, FL
Edgecombe Community College, NC
Edinboro University of Pennsylvania, PA
Edison Community College, FL
Edison State Community College, OH
El Paso Community College, TX
Elizabeth City State University, NC
Elizabethtown College, PA
Elmira College, NY
Elms College, MA
Elon College, NC
Embry-Riddle Aeronautical University, AZ
Emory and Henry College, VA
Emporia State University, KS
Erskine College, SC
ETI Technical College, OH
Evergreen State College, WA
Fairmont State College, WV
Fayetteville State University, NC
Flagler College, FL
Flathead Valley Community College, MT
Florence-Darlington Technical College, SC
Florida Agricultural and Mechanical University, FL
Florida Community College at Jacksonville, FL
Florida Institute of Technology, FL
Florida Memorial College, FL
Florida State University, FL
Fontbonne College, MO
Fort Berthold Community College, ND
Fort Hays State University, KS
Fort Lewis College, CO
Fort Scott Community College, KS
Francis Marion College, SC
Franklin and Marshall College, PA
Franklin College of Indiana, IN
Franklin University, OH
Frederick Community College, MD
Free Will Baptist Bible College, TN
Freed-Hardeman College, TN
Fresno City College, CA
Front Range Community College, CO
Frostburg State University, MD
Fugazzi College, KY
Furman University, SC
Gallaudet University, DC
Galveston College, TX
Garden City Community College, KS
Gateway Technical College, WI
Genesee Community College, NY
Geneva College, PA
George Fox College, OR
Georgetown College, KY
Georgia Institute of Technology, GA
Georgia Southern University, GA
Gettysburg College, PA
Glassboro State College, NJ
Glendale Community College, AZ
Gogebic Community College, MI
Grace College, IN
Graceland College, IA
Grand Canyon University, AZ
Grand Rapids Junior College, MI
Green River Community College, WA
Greenville College, IL
Grossmont College, CA
Grove City College, PA
Guilford College, NC
Gustavus Adolphus College, MN
Gwynedd-Mercy College, PA
Hagerstown Junior College, MD
Hamilton College, NY
Hampden-Sydney College, VA
Hampshire College, MA
Harcum Junior College, PA
Harford Community College, MD
Harris-Stowe State College, MO
Harrisburg Area Community College, PA
Hartnell College, CA
Harvard University, MA
Haskell Indian Junior College, KS
Hastings College, NE
Hawkeye Institute of Technology, IA
Haywood Community College, NC
Hendrix College, AR
Hesston College, KS
Highland Community College, KS
Hill College of the Hill Junior College District, TX
Hiram College, OH
Hobart and William Smith College, NY
Holy Family College, PA
Holy Names College, CA
Holyoke Community College, MA
Hood College, MD
Hope College, MI
Houghton College, NY
Housatonic Community College, CT
Houston Community College System, TX
Howard Community College, MD
Howard Payne University, TX
Huntingdon College, AL
Huntington College, IN
Illinois Institute of Technology, IL

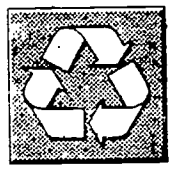
Illinois Valley Community College, IL
Imperial Valley College, CA
Indian Hills Community College, IA
Indian River Community College, FL
Indiana Institute of Technology, IN
Indiana University , Kokomo, IN
Indiana University East, IN
Indiana University Northwest, IN
Indiana University of Pennsylvania, PA
Indiana University Southeast, IN
Indiana University, Purdue University at Fort Wayne, IN
Indiana Vocational Technical College, Central Indiana, IN
Indiana Vocational Technical College, Lafayette, IN
Iona College, NY
Iowa Lakes Community College, IA
Iowa Wesleyan College, IA
Isothermal Community College, NC
Itawamba Community College, MS
Ithaca College, NY
Jackson Community College, MI
Jackson State Community College, TN
Jacksonville State University, AL
Jamestown Community College, NY
Jefferson Community College, NY
Jefferson State Junior College, AL
Jersey City State College, NJ
John A. Logan College, IL
John C. Calhoun State Community College, AL
John Tyler Community College, VA
Johnson Bible College, TN
Johnson County Community College, KS
Johnson C. Smith University, NC
Joliet Junior College, IL
Jones County Junior College, MS
Jordan College, MI
Judson College, IL
Kalamazoo Valley Community College, MI
Kankakee Community College, IL
Kansas State University, KS
Kellogg Community College, MI
Kendall College of Art and Design, MI
Kenyon College, OH
Keystone Junior College, PA
King's College, NY
Kings River Community College, CA
Kirkwood Community College, IA
La Salle University, PA
LaGrange College, GA
Lake Forest College, IL
Lake Land College, IL
Lake Michigan College, MI
Lakeland College, WI
Lakeshore Technical College, WI
Lamson Junior College, AZ
Laramie County Community College, WY
Laredo Junior College, TX
Lebanon Valley College, PA
Lenoir Community College, NC
Lewis University, IL
Limestone University, SC
Lock Haven Univ. of Pennsylvania, PA
Long Beach City College, CA
Long Island University, C. W. Post Campus, NY
Long Island University, Southampton Campus, NY
Longwood College, VA
Lord Fairfax Community College, VA
Los Angeles City College, CA
Los Angeles Harbor College, CA
Los Angeles Pierce College, CA
Louisiana College, LA
Louisiana State Univ., Shreveport, LA
Louisiana State University at Alexandria, LA
Lower Columbia College, WA
Loyola Marymount University, CA
Luther College, IA
Lyndon State College, VT
Macon College, GA
Madison Business College, WI
Madonna University, MI
Manchester Community College, CT
Manhattan College, NY
Mankato State University, MN
Mansfield University of Pennsylvania, PA
Maranatha Baptist Bible College, WI
Marian College, IN
Marian Court Junior College, MA
Marist College, NY
Marquette University, WI
Marshalltown Community College, IA
Martin Center College, IN
Martin Community College, NC
Martin Methodist College, TN
Marygrove College, MI
Maryland Institute, College of Art, MD
Marylhurst College, OR
Maryville College, TN
Maryville University, Saint Louis, MO
Marywood College, PA
Master's College, CA
Mater Dei College, NY
Mayville State University, ND
McCook Community College, NE
McHenry County College, IL
McKendree College, IL
McKenzie College, TN
McLennan Community College, TX
McMurry College, TX
Medaille College, NY
Memphis State University, TN
Mendocino College, CA
Merced College, CA
Mercy College, NY
Meredith College, NC
Mesabi Community College, MN
Messiah College, PA
Metropolitan State College, CO
Mid-Plains Community College, NE
Mid-State Technical College, WI
MidAmerica Nazarene College, KS
Middle Georgia College, GA
Middlesex County College, NJ
Midlands Technical College, SC
Midwestern State University, TX
Miles College, AL

Miles Community College, MT
Millersville University of Pennsylvania, PA
Millsaps College, MS
Milwaukee Area Technical College, WI
Mineral Area College, MO
Minot State University, ND
Mission College, CA
Mississippi State University, MS
Mississippi Valley State University, MS
Missouri Western State College, MO
Mitchell Community College, NC
Modesto Junior College, CA
Mohegan Community College, CT
Molloy College, NY
Monmouth College, NJ
Montana College of Mineral Science and Technology, MT
Montana State University, MT
Montclair State College, NJ
Montgomery College, Rockville Campus, MD
Montgomery Community College, NC
Moraine Valley Community College, IL
Moravian College, PA
Morehead State University, KY
Motlow State Community College, TN
Mount Aloysius College, PA
Mount Ida College, MA
Mount Mary College, WI
Mount Saint Mary College, NY
Mount San Antonio College, CA
Mount Union College, OH
Mount Vernon Nazarene College, OH
Mount Wachusett Community College, MA
Mt. Hood Community College, OR
Mt. San Jacinto College, CA
Muskingum College, OH
Nashville State Technical Institute, TN
Nassau Community College, NY
National-Louis University, IL
Navajo Community College, AZ
Neosho County Community College, KS
New College, Univ. of South Florida, FL
New Hampshire College, NH
New Jersey Institute of Technology, NJ
New Mexico Junior College, NM
New Mexico State Univ Main Campus, NM
New Mexico State University Carlsbad, NM
New Mexico State University, Alamogordo, NM
New York Chiropractic College, NY
New York Institute of Technology, NY
Newberry College, SC
Niagara University, NY
Nicolet Area Technical College, WI
Nicholls State University, LA
North Carolina A and T State Univ., NC
North Carolina State University, NC
North Carolina Wesleyan College, NC
North Central College, IL
North Central Missouri College, MO
North Dakota State University, ND
North Greenville College, SC
North Hennepin Community College, MN
North Shore Community College, MA
Northeast Community College, NE
Northeast Iowa Technical Institute, Peosta Campus, IA
Northeast Missouri State University, MO
Northeastern Junior College, CO
Northeastern State University, OK
Northern Arizona University, AZ
Northern Kentucky University, KY
Northern Michigan University, MI
Northern Montana College, MT
Northland Pioneer College, AZ
Northwest Community College, WY
Northwest Missouri State University, MO
Northwestern College, IA
Northwestern College, MN
Northwestern College, WI
Northwestern Electronics Institute, MN
Norwalk Community College, CT
Norwich University, VT
Notre Dame College of Ohio, OH
Nyack College, NY
Oakland University, MI
Odessa College, TX
Oglala Lakota College, SD
Ohio Northern University, OH
Ohio University, Belmont, OH
Ohio University, Chillicothe, OH
Ohlone College, CA
Oklahoma Baptist University, OK
Oklahoma City Community College, OK
Oklahoma State University, OK
Old Dominion University, VA
Onondaga Community College, NY
Oral Roberts University, OK
Orange County Community College, NY
Orangeburg-Calhoun Technical College, SC
Oregon Institute of Technology, OR
Oregon State University, OR
Otterbein College, OH
Our Lady of the Lake University, TX
Pacific Lutheran University, WA
Palo Alto College, TX
Palomar College, CA
Pan American University, TX
Panola Junior College, TX
Paris Junior College, TX
Parkland College, IL
Parks Junior College, CO
Pasadena City College, CA
Pasco-Hernando Community College, FL
Peace College, NC
Pellissippi State Technical Community College, TN
Penn Valley Community College, MO
Pennsylvania College of Technology, PA
Pennsylvania State Univ. at Erie,, PA
Pennsylvania State Univ., Univ. Park Campus, PA
Pennsylvania State University Allentown Campus, PA
Pennsylvania State University Altoona Campus, PA
Pennsylvania State University Hazelton Campus, PA
Pennsylvania State University New Kensington Campus, PA
Pennsylvania State University York Campus, PA
Phillips University, OK

Piedmont College, GA
Piedmont Community College, NC
Pikeville College, KY
Pittsburg State University, KS
Pitzer College, CA
Polk Community College, FL
Pomona College, CA
Potomac State College of West Virginia University, WV
Prairie View A and M University, TX
Pratt Community College, KS
Pratt Institute, NY
Presbyterian College, SC
Prince George's Community College, MD
Princeton University, NJ
Purdue University North Central, IN
Purdue University, Main Campus, IN
Queen of the Holy Rosary College, CA
Queens College, NC
Quincy College, MA
Quinebaug Valley Community College, CT
Quinnipiac College, CT
Randolph-Macon College, VA
Ranger Junior College, TX
Rappahannock Community College, VA
Red Rocks Community College, CO
Reed College, OR
Regis College, CO
Regis College, MA
Reinhardt College, GA
Rend Lake College, IL
Rhode Island College, RI
Rhodes College, TN
Richard Bland College, VA
Rider College, NJ
Ringling School of Art and Design, FL
Ripon College, WI
Roane State Community College, TN
Roberts Wesleyan College, NY
Rockefeller University, NY
Rockhurst College, MO
Rocky Mountain College of Art and Design, CO
Rogue Community College, OR
Rose State College, OK
Rose-Hulman Institute of Technology, IN
Russell Sage College, NY
Rutgers University, Camden Campus, NJ
Sacramento City College, CA
Saginaw Valley State University, MI
Saint Augustine College, IL
Saint Charles County Community College, MO
Saint Joseph College, CT
Saint Joseph's College, IN
Saint Leo College, FL
Saint Martin's College, WA
Saint Mary College, KS
Saint Mary's College, IN
Saint Mary's College, MI
Saint Mary's College of Minnesota, MN
Saint Mary-of-the-Woods College, IN
Saint Meinrad College, IN
Saint Michael's College, VT
Salem State College, MA
Sam Houston State University, TX
San Francisco State University, CA
San Jacinto College, South Campus, TX
San Joaquin Delta College, CA
San Jose State University, CA
San Juan College, NM
Santa Fe Community College, NM
School of the Ozarks, MO
Schreiner College, TX
Scripps College, CA
Seattle Pacific University, WA
Seminole Junior College, OK
Seton Hall University, NJ
Shawnee State University, OH
Sheldon Jackson College, AK
Shimer College, IL
Siena College, NY
Silver Lake College, WI
Simon's Rock of Bard College, MA
Simpson College, IA
Sinclair Community College, OH
Sisseton-Wahpeton Community College, SD
Skagit Valley College, WA
Skyline College, CA
Slippery Rock University of Pennsylvania, PA
South Carolina State College, SC
South Dakota School of Mines and Technology, SD
South Georgia College, GA
South Plains College, TX
South Puget Sound Community College, WA
Southeast Community College, Beatrice Campus, NE
Southeast Community College, Milford Campus, NE
Southeast Missouri State University, MO
Southeastern Baptist Theological Seminary, NC
Southern Arkansas University, AR
Southern Arkansas University Tech, AR
Southern California College, CA
Southern College, FL
Southern College of Technology, GA
Southern Illinois Univ, Carbondale, IL
Southern Methodist University, TX
Southern Nazarene University, OK
Southern Oregon State College, OR
Southwest Missouri State University, MO
Southwest State Technical College, AL
Southwest Wisconsin Technical College, WI
Southwestern Adventist College, TX
Southwestern Michigan College, MI
Southwestern Oklahoma State University, OK
Southwestern University, TX
Springfield College, MA
Springfield College in Illinois, IL
St. Ambrose University, IA
St. Catharine College, KY
St. Clair County Community College, MI
St. Cloud State University, MN
St. Francis College, NY
St. John's College, NM
St. Johns River Community College, FL
St. Joseph's College, NY
St. Lawrence University, NY
St. Louis Community College at Forest Park, MO

St. Louis Community College at Meramec, MO
St. Mary's University of San Antonio, TX
St. Norbert College, WI
St. Olaf College, MN
St. Paul Technical College, MN
St. Petersburg Junior College, FL
St. Thomas Aquinas College, NY
St. Thomas University, FL
Stanford University, CA
State University of New York College of Agriculture and Technology at Morrisville, NY
State University of New York College of Technology at Canton, NY
Stetson University, FL
Stevens Institute of Technology, NJ
Stockton State College, NJ
Stonehill College, MA
Suffolk Community College All Campuses, NY
Suffolk County Community College Western Campus, NY
Sullivan County Community College, NY
SUNY College at Brockport, NY
SUNY College at New Paltz, NY
SUNY College at Plattsburgh, NY
SUNY College at Potsdam, NY
SUNY- College at Cobleskill, NY
SUNY-Binghamton, NY
SUNY-College of Technology at Alfred, NY
SUNY-College of Technology at Farmingdale, NY
SUNY-Health Science Ctr Brooklyn, NY
SUNY-Health Science Ctr Syracuse, NY
Suomi College, MI
Susquehanna University, PA
Swarthmore College, PA
Tarleton State University, TX
Teikyo Marycrest University, IA
Tennessee Technological University, TN
Tennessee Temple University, TN
Texas A and I University, TX
Texas A and M University, TX
Texas Christian University, TX
Texas Southern University, TX
Texas Wesleyan University, TX
The Citadel, SC
Thomas A. Edison State College, NJ
Thomas More College, KY
Tidewater Community College, Portsmouth Campus, VA
Tiffin University, OH
Towson State University, MD
Transylvania University, KY
Tri-County Community College, NC
Trinidad State Junior College, CO
Trinity Christian College, IL
Troy State University at Dothan, AL
Truett-McConnell College, GA
Tufts University, MA
Tulane University of Louisiana, LA
Tulsa Junior College, OK
Tuskegee University, AL
Ulster County Community College, NY
Umpqua Community College, OR
Union College, NE
Union College, NY
Union University, TN
United States Air Force Academy, CO
United States Coast Guard Academy, CT
United States Merchant Marine Academy, NY
United States Military Academy, NY
United States Naval Academy, MD
University of Akron, OH
University of Alaska Southeast, Ketchikan Campus, AK
University of Alaska, Prince William Sound Community College, AK
University of Arizona, AZ
University of California, Davis, CA
University of California, Los Angeles, CA
University of California, San Diego, CA
University of California, Santa Cruz, CA
University of Central Texas, TX
University of Charleston, WV
University of Connecticut, CT
University of Denver, CO
University of Evansville, IN
University of Findlay, OH
University of Georgia, GA
University of Hawaii, Kapiolani Community College, HI
University of Hawaii, Windward Community College, HI
University of Idaho, ID
University of Iowa, IA
University of Kansas, KS
University of Kentucky, KY
University of Kentucky, Elizabethtown Community College, KY
University of Kentucky, Hazard Community College, KY
University of Kentucky, Madisonville Community College, KY
University of Kentucky, Maysville Community College, KY
University of Kentucky, Paducah Community College, KY
University of Louisville, KY
University of Maine at Fort Kent, ME
University of Maine at Machias, ME
University of Maine at Presque Isle, ME
University of Maryland at Baltimore, MD
University of Maryland University College, MD
University of Miami, FL
University of Michigan, MI
University of Michigan, Dearborn, MI
University of Minnesota, Crookston, MN
University of Minnesota, Morris, MN
University of Minnesota, Waseca, MN
University of Minnesota, Twin Cities, MN
University of Mississippi, MS
University of Missouri-Kansas City, MO
University of Missouri-Saint Louis, MO
University of Montevallo, AL
University of Nevada-Las Vegas, NV
University of New Mexico, Valencia Campus, NM
University of New Mexico, Gallup Branch, NM
University of New Orleans, LA
University of North Carolina, Chapel Hill, NC
University of North Carolina, Charlotte, NC
University of North Carolina, Wilmington, NC
University of North Florida, FL
University of Notre Dame, IN
University of Oklahoma, OK

University of Oregon, OR
University of Pittsburgh, Main Campus, PA
University of Richmond, VA
University of San Diego, CA
University of San Francisco, CA
University of South Carolina, Spartanburg, SC
University of South Carolina, Union, SC
University of South Carolina, Columbia, SC
University of South Carolina, Lancaster, SC
University of Southern California, CA
University of Southern Indiana, IN
University of Southwestern Louisiana, LA
University of Tampa, FL
University of Tennessee, Chatanooga, TN
University of Tennessee, Knoxville, TN
University of Texas at Austin, TX
University of Texas, Arlington, TX
University of the Ozarks, AR
University of the South, TN
University of Tulsa, OK
University of Utah, UT
University of Virginia-Main Campus, VA
University of Washington, WA
University of West Florida, FL
University of Wisconsin Center, Fond du Lac, WI
University of Wisconsin Center, Richland, WI
University of Wisconsin Center, Rock County, WI
University of Wisconsin Center, Sheboygan County, WI
University of Wisconsin, Eau Claire, WI
University of Wisconsin, Green Bay, WI
University of Wisconsin, Milwaukee, WI
University of Wisconsin, Parkside, WI
University of Wisconsin, Stevens Point, WI
University of Wisconsin, Stout, WI
University of Wisconsin, Whitewater, WI
University of Wyoming, WY
Ursinus College, PA
Ursuline College, OH
Utah Valley Community College, UT
Utica College of Syracuse University, NY
Vanderbilt University, TN
Ventura College, CA
Vermilion Community College, MN
Villa Maria College of Buffalo, NY
Villanova University, PA
Vincennes University, Jasper Center, IN
Virginia Highlands Community College, VA
Virginia Military Institute, VA
Virginia Polytechnic Inst and State Univ, VA
Virginia Wesleyan College, VA
Virginia Western Community College, VA
Viterbo College, WI
Volunteer State Community College, TN
Wabash College, IN
Wake Forest University, NC
Waldorf College, IA
Walker College, AL
Walla Walla College, WA
Walsh College, OH
Walsh College of Accountancy and Business Administration, MI
Walters State Community College, TN
Warner Pacific College, OR
Warner Southern College, FL
Wartburg College, IA
Washington and Jefferson College, PA
Washington University, MO
Waubonsee Community College, IL
Waycross College, GA
Wayne Community College, NC
Wayne State University, MI
Weatherford College, TX
Weber State College, UT
Webster University, MO
Wenatchee Valley College, WA
Wentworth Institute of Technology, MA
Wentworth Military Academy and Junior College, MO
Wesley College, DE
Wesleyan University, CT
West Coast University, CA
West Hills College, CA
West Los Angeles College, CA
West Texas State University, TX
West Virginia University, WV
Westark Community College, AR
Westbrook College, ME
Westchester Community College, NY
Western Carolina University, NC
Western Connecticut State University, CT
Western Illinois University, IL
Western Iowa Tech Community College, IA
Western Maryland College, MD
Western Nebraska Community College, NE
Western New England College, MA
Western Piedmont Community College, NC
Western State College of Colorado, CO
Western Washington University, WA
Western Wyoming Community College, WY
Westfield State College, MA
Westminster College, MO
Westminster College of Salt Lake City, UT
Westmont College, CA
Westmoreland County Community College, PA
Whatcom Community College, WA
Whitman College, WA
Whittier College, CA
Whitworth College, WA
Willamette University, OR
William Jennings Bryan College, TN
Williams College, MA
Winston-Salem State University, NC
Winthrop College, SC
Wisconsin Lutheran College, WI
Wood Junior College, MS
Woodbury University, CA
Worcester Polytechnic Institute, MA
Worthington Community College, MN
Wright State University, Lake Campus, OH
Wright State University, Main Campus, OH
Wytheville Community College, VA
Yeshiva University, NY
York College, CUNY, NY
Youngstown State University, OH



Printed on
Recycled Paper

THE JAMES IRVINE FOUNDATION
CENTER FOR SCHOLARLY TECHNOLOGY
UNIVERSITY OF SOUTHERN CALIFORNIA
300 DOHENY MEMORIAL LIBRARY
LOS ANGELES, CA 90089-0182