FINAL REPORT

ASSURED STUDENT ACCESS TO COMPUTING AND THE NETWORK

HUMBOLDT STATE UNIVERSITY
June 2, 1998

In August 1994, Presidents McCrone, Humboldt State University; Armiñana, Sonoma State University; and Baker, California Polytechnic University - San Luis Obispo, proposed to the Chancellor that all enrolled California State University students have uninterrupted twenty-four hour access to a personal computer and the Internet and that a technology fee of $36 per student per semester be permitted to help fund the resultant infrastructure requirements. In June 1995, Chancellor Munitz issued the Commission on Learning Resources and Instructional Technology's *Guidelines Relating to Adoption of a Requirement for Students to have 24-Hour Access to a Personal Computer and the Network.* HSU submitted its *Implementation Plan for Assured Student Access* in July 1995. The Chancellor's Office approved HSU's plan, giving HSU permission to proceed with implementation of a three-year pilot program for the CSU, on the condition that HSU include a faculty development component. That component, *Faculty Development Program to Support the Assured Student Access to Computing Initiative,* was submitted in March 1996. HSU also was asked to provide annual reports for distribution to all the institutions in the CSU.

HSU's first annual report, *Assured Student Access to Computing Initiative Progress Report,* was submitted to the Chancellor's Office in June 1996; and the second was submitted as part of *Baseline Hardware/Software Access, Training, and User Support Initiative Implementation Plan for Humboldt State University* in January 1997. A supplemental submittal to the January report providing an update on activities relating to information competency and faculty development was submitted in August 1997. This document, HSU's third annual report, constitutes HSU's final report on its pilot project.

EXECUTIVE SUMMARY

To fund the implementation an *Assured Student Access* program, the students of Humboldt State University recommended a student technology fee of $36 per student per semester during the Associated Students elections in April 1995. The Chancellor's Office approved HSU's plan for the program in July 1995, authorized HSU to proceed with the program as a pilot for the CSU, and provided funding in lieu of HSU actually collecting the recommended technology fee. HSU's approach has followed two tracks: providing improved and additional equipment and support services to students; and implementing an associated faculty development and support program. If students are to be encouraged to purchase computers, there must be content in their course work that justifies the investment. Also, faculty must see the new technologies as positive additions to their teaching tools if they are to participate. **[See *THE HUMBOLDT APPROACH* starting on page 2.]**

HSU has used the "in lieu of" funding primarily to expand the number of interdisciplinary and open computing laboratories on campus and provide additional staffing to support those laboratories. It has supplemented these funds with internal reallocations to build learning assistance and courseware development laboratories and provide Help Desk service to ensure that both students and faculty receive the training and support they need in order to use the new technologies effectively. **[See *PROGRAM SPECIFICS* starting on page 9.]**

The program has been a success. In the most recent survey of the entire student body (Spring 1997), 80% of students either owned a microcomputer or otherwise had assured themselves access to one when off-campus. With nearly 700 microcomputers available on campus for student access by a student body of about 7,200, most, if not all, students seem to be able to find the resources to complete the computing portions of their assignments. Almost 400 faculty have used the services of the Faculty Development Laboratory and Courseware Development Center that was established to support this program, and about 100 courses now have a significant component of technology mediated instruction in them. **[See *SUCCESS INDICATORS* starting on page 17.]**

The pilot program has generated a lot information about student behavior and about what HSU and the rest of CSU can expect from student use of technology in the near term. In particular, student ownership of microcomputers will not eliminate the need for CSU to continue providing on-campus computing facilities. Students prefer desk-top computers to lap-tops, so virtual computing laboratories will not replace standard labs within the next few years. Further, students cannot be expected to license the expensive discipline-specific software which their course work requires, and the institution will need to find ways of making that software available to them. Finally, full funding for a refresh cycle of three years for the interdisciplinary, open, discipline-specific, and learning assistance laboratories; Help Desk services; and courseware development support would require an expenditure in the HSU environment of approximately $185 per student per semester. **[See *LESSONS LEARNED/LESSONS SHARED* starting on page 21.]**

THE HUMBOLDT APPROACH

It is questionable whether a computing access requirement can be implemented successfully unless the students are prepared to accept and use the technology. As reported in HSU's original *Implementation Plan for Assured Student Access*, significant consultation with students accordingly was performed in the development of the original Plan. HSU's administration and faculty already were well aware of the importance of computing to students. In *An Analysis of Student Responses to the College Student Experiences Questionnaire* (Fall 1995), C. Robert Pace reported that "the special character of HSU emerges as a blend of virtues from highly selective liberal arts colleges and doctoral granting universities." HSU "liberal arts" students take more science and HSU "science" students take more liberal arts than what is typical at cohort comprehensive universities. One of the results is that HSU students are comfortable with the use of and effective in the application of technology in their studies. This was borne out by the 1993 Student Needs and Priorities Survey (SNAPS) as reported by Dr. Paul Crosbie in *The Forest for the Trees*, (1994). HSU students ranked first or second in terms of frequency of use in ten of twelve computing domains (word processing, electronic mail, spreadsheets, graphics, library, etc.) among the students in the California State

University. Further, they ranked first in terms of interest in using computers in the future in ten out of the twelve domains and second in the remaining two domains.

HSU was having difficulty meeting student expectations for laboratory computing. Most interdisciplinary computing laboratories had been donated to the University, either through the Parents' Fund or as corporate gifts. Although HSU is justifiably proud of its ability to obtain these one-time gifts, sustaining gifts for computing labs are very rare. HSU did not have the funds for upgrades and replacements because the annual base budget for Academic Computing support was typical for an institution of this size — about $265,000 for personnel, $56,600 for employee benefits, and $93,500 for combined operating expenses — sufficient only to provide maintenance for the labs. Approximately $15,000 of the annual paper costs in the labs were covered from a $3 per student per course Materials, Services, and Facilities (MSF) fee. These were the total on-going funds available to support technology mediated instruction. It was the need to refresh existing laboratories and build new ones that led President McCrone to propose the *Assured Student Access* initiative and the $36 per student per semester technology fee to Chancellor Munitz.

Humboldt State University showed its commitment to support expanded student computing by making a significant investment in infrastructure prior to developing its CSU-supported assured access implementation plan, replacing a single, ageing Digital Equipment Corporation VAX computer with three Digital Alpha 2100 computers during 1994/95 to support academic computing. This was a University-wide investment of over $300,000 being liquidated under five-year financing. HSU's students demonstrated their willingness to share in the costs of an improved support program when they approved a $36 per student per semester Computer Technology Fee during the Associated Students elections in April 1995 to fund improved access to the campus' interdisciplinary computing laboratories, provide a software library for students, and implement a help desk function. The referendum passed with more than sixty percent voting "yes" of those students who voted. HSU is the only campus in the CSU at which the students approved such a fee. However, the Chancellor's Office asked that HSU not collect it and instead provided comparable funding in lieu of the technology fee.

Students are knowledgeable consumers of education. They want to know what the return on their investment is. This was a recurring theme in 1995/96 in the open sessions and focus groups, dominated by student participants, as Humboldt State University began working on its strategic plan. The strategic planning group's Information Technology Task Force Position Paper, issued in May 1996, stated with respect to the Assured Student Access Initiative that "If students are to be encouraged to purchase computers, there must be content in their course work that justifies the investment. Technology for technology's sake is not a goal of the initiative — effective use of information technology to enhance learning is."[1] This philosophy has been the driving force behind HSU's Assured Student Access pilot project.

[1] *Humboldt State University Strategic Plan, A Commitment to Excellence and Shared Vision* was adopted in June 1997. The complete text of the Information Technology Task Force Position Paper is included with this document as Attachment 1.

HSU's approach has been to follow two tracks: providing improved and additional equipment and support services for students; and implementing an associated faculty development and support program.

Student Support

Humboldt State University has treated the funds provided by the Chancellor's Office in lieu of HSU being given approval to collect the technology fee approved by its students as though those funds actually were generated by a student technology fee. Accordingly, in 1995/96, the Provost formed the Student Technology Fee Committee to make recommendations for the pilot program. The Committee, chaired by a student, was comprised of three students appointed by the Associated Students and two faculty members appointed by the Academic Senate. Staff support was provided by the Director of Computing & Telecommunications Services (C&TS), the Manager of Academic Computing (part of C&TS), and the General Manager of the Associated Students Business Office.

The Committee developed a request for proposals and received responses from across the campus. The Committee used two strict tests of appropriateness of applying the funds to projects matching the intent of the referendum. First, the project had to provide computing capability. Projects that used computers to some other end than providing general computing access were not considered. Second, projects were ranked highest that resulted in the most open access to the most students (i.e., benefitted the general student population, not just a restricted segment of that population). The Committee completed its task with a report to the Provost in May 1997. The Committee recommended that some specific projects be undertaken at the end of 1995/96 and in 1996/97 and recommended that, in general, the "student technology fee" funds be spent as follows:

- The computers and software in the interdisciplinary computing laboratories and open student computing laboratories should be refreshed as often as possible with the available funds. Particular emphasis should be given to ensuring that the largest of the open student labs has the latest hardware and software available (open student labs at HSU are those in which classes or other activities never are scheduled — the facilities are reserved solely for out-of-class student use) .

- The emphasis should be on ensuring the availability of the labs during class time and evening hours, not on putting significant resources into 24-hour operation because the demand for round-the-clock operation appeared low.

- The best way to ensure the availability of microcomputers is to keep all the hardware and software in the labs running. Some of the funds should be set aside for support personnel and spare parts. Fully configured and tested spares should be available.

- Older computers should be distributed to financially eligible students rather than being surplused. Student employees could refurbish these computers.

The Provost approved these recommendations, and the pilot project has been implemented in substantial conformance with them, with the following exceptions:

- The interdisciplinary and open student computing labs operate during the same hours as the buildings in which the labs are located are open to public access, typically 7:00 a.m. until midnight. Most of the year, student requests for access after building closing times are negligible because of the lack of public transportation in the Arcata area in the evenings and the loneliness of the campus all night. However, there are some requests to access labs after building hours. Students can obtain passes under certain circumstances through their department. Further, the last four weeks of the semester, when demand is highest, a lab monitor is hired and the open hours for the 42-station open student lab in Gist Hall 218 are extended from the normal closing time of midnight until 3:00 a.m. on Monday through Thursday. Hours will be adjusted as demand increases. Usage statistics are included in Attachment 2.

- The "old" computers that were available for refurbishing typically were about seven years old and would not have been of value beyond word processing and some spreadsheet work even if they could have been refurbished to operate at an acceptable level of reliability. However, in a test project, it was not unusual for the parts of three computers to be needed to build one working model. Even then, it often was necessary to purchase a new disk drive. It was decided that this part of the program would be delayed until the project reached its second refresh round. The machines then coming available out of the computing labs will have been on regular maintenance and should be effective computers for student out-of-class use. This part of the program will be started in 1999/00.

The HSU Bookstore offers Apple products at the lowest possible price, supports the Apple lease program, provides maintenance at lower prices than other local maintenance providers, and is able to provide extensive user support. It also has established relationships with several local PC providers for special student and faculty pricing on PCs and worked with the local banks to provide financing options. A review by the Office of Enrollment Management estimated that if the student technology fee actually had been imposed during 1995/96, no more than 400 HSU students would have qualified for a fee waiver (average family income of HSU students at that time was $70,000/year). With warranted, refurbished, Internet-ready 486 and Pentium systems with software being sold nationally for less than $600 and new microcomputers selling for less than $1,000, most HSU students can afford a microcomputer.

There are certainly students in need at Humboldt State University, but available programs appear to ensure that those who wish to acquire a microcomputer can do so. HSU has seeded a loan pool in the Financial Aid Office for federally sponsored computer purchase loans. The federal program is structured to reimburse the student (up to $2,000) after the student purchases a computer. Via this seeding of the loan pool, students can obtain an invoice from the Bookstore, take it to Financial Aid to have a check cut to the Bookstore, use the check to purchase the system, use the receipt to obtain the federal loan, and use the federal loan to pay off the loan from the Financial Aid Office. The University also has allocated General Fund moneys to build small labs for access by particular populations that may have difficulty acquiring their own microcomputers. For example, labs are available in the Educational Opportunity Program center and in the Multi-cultural Center.

HSU has adopted the position that, just as it is not HSU's responsibility to provide transportation of students' physical bodies from their homes to the campus, it is not HSU's responsibility to provide the electronic transportation either. HSU operates only thirty public, "free" modems in its modem pool, supporting speeds up to 14.4 Kbps. Only *lynx*, a text-based Web browser, is available from student homes via the modem pool; graphical user interface (GUI) browsers are not available. HSU has no plans to expand its modem pool. Although geographically isolated, Humboldt County is served by four local Internet Service Providers (ISPs), one of which provides wireless services. Also, a number of the national providers, including AT&T, MCI, Sprint, and AOL provide service in this area. An unknown number of faculty, students, and staff subscribe to these ISPs but a good indication that the number is high is HSU's unique history of success in the SprintLink program sponsored by the California State University. Almost 1,000 of HSU's faculty, students, and staff subscribed to the SprintLink service, approximately one third of the total CSU subscriptions! When that service was discontinued, almost all of those subscribers rolled their subscriptions over to the regular Sprint ISP service. At the same time, the three local ISPs made major expansions in their equipment bases. All three still are in business and a fourth has joined the competition since then. Among first-time Freshmen in the Fall of 1997, 51% either arrived at campus with a computer equipped with a modem or already had made arrangements to access someone else's computer that had a modem.

The Network Support group within Computing & Telecommunications Services has been working with Housing and Dining Services to install a data connection "per pillow" in the residence halls. Several small computer labs in the residence halls used for the "Living and Learning" program already have been connected to the campus backbone, and three of the residence halls are fully wired. Over the next two to three years, Housing hopes to complete the wiring as well as build two larger computing labs to serve its over 1,300 residents (almost 20% of HSU's total student population at any given time – almost 80% of HSU's students live at least one year in the residence halls) using about $1 million in non-State funds.

To ensure that students are able to use the information technology resources at HSU, the Information Technology Resource Center (ITRC), a part of Computing & Telecommunications Services, provides orientations for first-time Freshmen and transfer students each semester. Topics covered include activating electronic mail accounts (each student leaves the orientation program with his or her account activated), availability of Internet Service Providers (includes modem settings for dial-up access), surviving in the interdisciplinary and open computing laboratories (most microcomputers are dual platform so students typically are not knowledgeable about their use), virus protection (HSU purchased a site license for the Dr. Solomon suite of antiviral software in 1996/97 that allows all faculty, staff, and students to use the software on their personal machines), and acquiring a microcomputer (with presentations on Bookstore services, financing plans, and financial aid). The ITRC also operates the Student Help Desk in Gist Hall 218, site of HSU's 24-hour student access lab. The Help Desk, established in 1997/98 with HSU Foundation funds made available through the President's office, is the first student consulting service available on the HSU campus in many years. Prior to the establishment of the Help Desk, students had to locate their instructor for assistance with any course-related computing problem. There was no formal help for students with general computing problems. At the Help Desk, student consultants provide walk-in, e-mail, and telephone assistance from 9:00 a.m. until 9:00 p.m., Monday through Thursday and 9:00 a.m. until 5:00 p.m.

on Fridays. During Fall 1997, about 7,500 student requests for assistance were accommodated. During Spring 1998, that number grew to more than 10,000. Usage statistics are provided in Attachment 3.

Faculty Support

The courseware content that provides value to the students and is the driver for student participation in the assured student access initiative can come only from the faculty. Again, the approach was permissive, not coercive. HSU believed that if the faculty development services were provided and courseware development and support services were available at no charge to the faculty or their departments or colleges, the faculty would be more than willing to participate: they would be eager to expand technology mediated instruction.

During Fall 1995, additional General Funds in the Office of Academic Affairs were reallocated to expand support for the Faculty Development Coordinator. A significant majority of the faculty development efforts are dedicated to supporting faculty computing competency. The Coordinator, nominated by the Academic Senate, arranges training sessions as demand requires. The Coordinator also helps coordinate faculty teaching faculty, an important component of HSU's faculty development program. Faculty provide seminars several times each year to their peers on technology capabilities, what works, what does not work, what kinds of outcomes they have experienced, and any other information they have on using technology to improve learning. HSU also sends representatives to almost every faculty workshop offered by the CSU's Institute for Teaching and Learning.

The key feature of the faculty development effort is the support structure provided to faculty who wish to develop courseware. HSU invested about $81,000 in building a Faculty Development Laboratory (FDL) and Courseware Development Center (CDC) during 1995/96 during the first year of the pilot project for assured student access. It also has reallocated $95,500/year in General Funds, supplemented with funds from the student access funding provided by the Chancellor's Office, to pay for a full-time courseware development manager, a full-time lab manager, a 0.20 FTE programmer/developer, 550 hours/month of student programming time, and operational and capital expenses. The most important aspect of the FDL/CDC is that all services for faculty developing courseware for on-campus use are provided at no charge to the faculty, department, or college. Faculty can work one-on-one with expert developers in the FDL to learn how to prepare courseware themselves or simply to learn what is possible so that they can recognize the opportunities. Students, including programmers, artists, and musicians are available in the CDC if the faculty member does not wish to do the actual development him or herself. The CDC will produce overhead transparencies, PowerPoint presentations, Web-based courseware, and CD-ROMs. Media Production provides valuable support services for filming and sound recording. Although the FDL and CDC have different primary roles, in actuality, they are "joined at the hip." The CDC is where all of the experimentation occurs, and the FDL is used for production work when not being used by the Faculty Development Coordinator. For this reason, both facilities are supervised by the CDC Manager. The availability of such resources has sparked tremendous interest among the faculty, with over 400 faculty having used at least some of the available services. About 100 courses have been developed in which technology mediated instruction is a significant delivery mechanism. These

courses can be converted with little additional effort to distance learning offerings, of which some already are being offered. Media Distribution sets up and checks out laptop computers and projectors so that instructors can use their courseware in any of the 75 classrooms and meeting rooms that have been connected to the campus Ethernet backbone.

Workshops are offered by the Faculty Development Laboratory (FDL) and the Information Technology Resource Center (ITRC), both parts of Computing & Telecommunications Services (C&TS). In addition to workshops in standard desktop packages, such as Windows Navigation, WordPerfect, File Manager, Print Manager, and *elm*, workshops are offered on specific topics involving development of courseware and using technology to improve education. These include PowerPoint, PageMaker, HTML, putting lecture notes on the Web, and using electronic communications to enhance the classroom experience. The Library also offers a number of workshops such as *Internet a la carte* and *pine* for both faculty and students and provides in-class instruction on locating information resources on the Internet.

The Provost established a Technology Roundtable during Summer 1996 comprised of faculty members and administrators to review technology support for faculty. As recognized by the Technology Roundtable participants, technology mediated instruction support services at HSU were fragmented. A faculty member trying to develop a course might have had to go to Media Services (then part of the Library) for video and/or voice recording and digitizing. Then he or she might have needed to go to the Courseware Development Center and/or Faculty Development Lab (both then under the Faculty Development Coordinator) to place it on the Web or a CD-ROM. If the course content took too much space on the campus Web server, he or she would need to go to Computer Operations (part of C&TS) to expand the course's disk quota. To load it in the computing labs, he or she would need to work with his or her college Information Technology Consultant and Academic Computing (part of C&TS). And, to offer the course off-campus, he or she would need to go to Extended Education (part of Enrollment Management). In this time-consuming procedure, no particular office could be held responsible, and faculty could become frustrated. The "early adopters" could work their way through any problems or roadblocks to accomplish their goals, but the general faculty demand an easier-to-use approach.

The Roundtable's responsibility was to determine whether any of these various units naturally aligned with each other so that they could be brought under one management umbrella that was "organized for success." The Roundtable developed a proposal to combine Media Services, the CDC and FDL, and Academic Computing into a Center for the Support of Instructional Technology (CSIT) which would be part of Computing & Telecommunications Services. Operationally, the CSIT would have two functions: design and development (using the resources of the CDC, FDL, and Media Production) and utilization (using the resources of Academic Computing and Media Distribution). Further, the CSIT would operate as a true "center," with a forum component that would sponsor lecture series, workshops, faculty interchange, grant activities, and collaborative efforts. The Roundtable's proposal was endorsed by the Academic Senate during Fall 1996.

CSIT was established as an independent center reporting through the Director of C&TS to the Provost: management of the CDC and FDL was passed to C&TS in October 1996; and Media Services was transferred to C&TS from the Library in July 1997. Media Distribution was relocated

from the Library to Gist Hall where the video production, video conferencing facilities, cable television head-end, and the Academic Computing offices already were located. Gist Hall also is home to HSU's "24-hour student access lab" (actually 7:00 a.m. until 3:00 a.m. during peak usage times during the semester) and its student help desk. The CDC, FDL, and Media Services were formed into a new group, Instructional Media Services (IMS), within C&TS. The IMS group is responsible for seamless support of faculty in the development of courseware and responsible for coordinating the faculty member's project with other units on campus providing services. CSIT receives operational support from the new IMS unit as well as Academic Computing. CSIT's activities are guided by a Faculty Advisory Committee (FAC) which provides operational recommendations to IMS and Academic Computing and is the heart of the Center. The FAC meets regularly through the Fall and Spring semesters to discuss issues of importance to the faculty, such as copyright, priorities, faculty incentives, credit transfer, remote registration, remote student support, and service bottlenecks. An organization chart for Computing & Telecommunications Services, the Mission Statement for the FAC, and guidelines for the CDC and FDL (in combination: the Faculty Courseware Development Center — FCDC) are included in Attachment 4.

Faculty receive their primary help desk services from their own college's Information Technology Consultants (ITCs). Because the ITCs often are in faculty offices installing hardware or software or in departmental computing labs providing maintenance, it is difficult to reach them for quick consulting help. During 1998/99, the Information Technology Resource Center will establish the Call Center to provide help desk services for both faculty and staff, including call-in support, and has begun several pilot programs to test methods of improving coordination with the distributed ITCs. Specific services and software development also are provided to support this effort. Every faculty member and student at HSU receives an e-mail account and a Web account (disk storage for student Web pages was purchased using proceeds from the now defunct SprintLink program). A program, locally developed by the staff in University Information Systems (part of C&TS), allows faculty to create a grade book for each class as well as a closed or moderated list (a Web-based form allows the faculty member to specify the option to the Majordomo list server system of what type of list to establish) for classroom discussion and assignments. The listserver automatically deletes the class list server two weeks after the end of the semester. A unique on-line testing facility, ExamMaker, has been developed by the CDC. ExamMaker supports banks of questions, which may include audio and/or video segments, that may be true/false, fill-in-the-blank, multiple choice, or essay. Essay questions are e-mailed to the instructor, but with no indicator of the student's identity. The instructor grades the essay and e-mails the result back to ExamMaker. ExamMaker grades all other types of questions and provides the student immediate feedback as soon as the exam is completed, including an explanation of the correct answers, and automatically posts the grade. The University has built an online testing center to administer tests for courses not normally scheduled into the labs. SyllabusCentral, another program developed by the CDC, allows faculty to post their course syllabi on the Web.

PROGRAM SPECIFICS

It is commendable and appreciated that the Chancellor's Office provided HSU with $521,496 during 1995/96, another $534,744 in 1996/97, and another $553,464 in 1997/98 in lieu of approval to assess

the Student Technology Fee recommended in the student referendum during Spring 1995. In addition, HSU received $113,383 in one-time funds from the Chancellor's Office in 1997/98 for support of the *Basic Access to Hardware/Software, Training, and Support* (BATS) initiative which it partially co-mingled with the "in lieu of" funding.

1995/96

During 1995/96, the "in lieu of" funds were spent to:

- Upgrade the Macintosh SE interdisciplinary lab in Founders Hall 202 to Macintosh 7100s (25 stations).

- Upgrade the 386 interdisciplinary lab in Gist Hall 215 to Macintosh 7200s with Pentium cards (25 stations – this project was supplemented with $150,000 in University-wide funds).

- Construct a new interdisciplinary lab with Macintosh 7200s with Pentium cards in Siemens Hall 118 (25 stations).

- Construct a new open student lab using the Mac SE computers from Founders Hall 202 in Library 310A (nine stations).

- Construct a new lab for Teacher Preparation and Credentialing lab work in the actual teaching environment at Pacific Union Elementary School using Mac SEs from Founders Hall 202 and other surplus machines (17 stations — also 6 additional stations spread around other local elementary schools to support Teacher Preparation). Although discipline-oriented, rather than a facility for the entire student body, this lab was considered a high priority in anticipation for the need for more teachers in California, particularly teachers experienced with technology in the K12 environment. Most of the inside construction work and all of the network installation was performed by volunteers from the C&TS staff who had children attending Pacific Union. Pacific Union provides all maintenance for the facility and its students use the facility as their computing lab when teacher preparation classes are not in session.

HSU realized that the student technology fee "in lieu of" funds were not sufficient to meet all its goals for supporting technology mediated instruction and could be considered only seed money for the *Assured Student Access* initiative. In 1995/96, the University allocated the following additional funds to support the initiative:

$21,000	OAA Lottery funds to construct adaptive workstations to meet the requirements of the Americans with Disability Act.
$37,200	OAA Lottery funds to improve maintenance in the labs. These funds were used primarily for upgrading memory and disk capacities in older labs as well as to help cover increases in the costs of maintenance contracts.

$95,000 OAA Lottery funds to replace major components, such as projectors, in a number of labs.

$150,000 University funds to cover some of the costs of upgrading the Gist Hall 215 lab, which was suffering multiple break-downs and software lock-ups.

$40,000 OAA discretionary funds for network improvements. Eleven buildings were connected to the fiber backbone via 10 Mbps Ethernet extenders, bringing Ethernet connectivity to all major classroom buildings on campus. By Fall 1996, 75 classrooms also were wired for Ethernet.

$81,000 Mix of OAA Lottery funds and additional funds from the President to build the Faculty Development Laboratory and Courseware Development Center. A number of corporate gifts of hardware and software, including laptop microcomputers for faculty to use in the classroom, also were used to equip the FDL and CDC.

$27,500 OAA discretionary funds for staffing the FDL and CDC.

$20,000 OAA Lottery funds for classroom improvements to support technology mediated instruction.

$16,000 OAA "end of the year" funds to purchase LitePro projectors for faculty to use in the classroom.

$25,000 University funds for faculty workstations, mostly lap-tops for check-out in the classroom. Most faculty workstations are purchased within individual departments and colleges and will not show up as part of this accounting. The campus received excess Lottery dollars in 1995/96, and the colleges used some of this money to purchase faculty workstations. The largest single purchase was 43 workstations purchased by the College of Arts and Humanities (now the College of Arts, Humanities, and Social Sciences).

$20,000 C&TS "end of the year" funds for a three-year site license for Dr. Solomon, virus protection software which can be used on all campus and personal home Wintel, Macintosh, and UNIX microcomputers.

$15,000 MSF fees for paper costs in the labs.

1996/97

During 1996/97, the "in lieu of" funds were spent to:

- Upgrade the open student lab in Gist Hall 218 to Macintosh 7200s with Pentium cards (this is HSU's "24-hour student access lab" and was increased from 31 mixed, older Macs and PCs to 42 stations plus two scanners).

- Upgrade the open student lab in Library 310A to Performa 610s (nine stations plus six asynchronous terminals from Science A 364 for e-mail access and access to campus mainframes).

- Construct a new interdisciplinary lab with Macintosh 7200s with Pentium cards in Science A 364 (25 stations). Science A 364 had been a terminal lab.

- Construct a new Pentium lab in Nelson Hall West 244 for the Department of Computing Science (28 stations — the College of Natural Resources & Sciences covered the costs of room renovation, about 20% of the total cost of the lab, and Computing Science agreed to remove all upper division courses from Siemens Hall 119 and Gist Hall 215, about 40% of the load in both of those two labs). Although discipline-specific, this lab freed up as much student access time in interdisciplinary labs as it created for the discipline students at the same cost for construction and provided the Computing Science students with a laboratory where they are not constrained by the software locks and protections required in the other labs.

- Construct a MIDI lab for the Music Department (Mac SEs from Library 310A). This also is a discipline-specific lab but was a good use of Mac SEs. Mac SEs no longer are effective general-purpose computing systems but are good MIDI controllers.

- Construct a testing center for administering on-line tests (15 stations, 386s from Gist Hall 218 — this project was supplemented with $31,000 from the University for construction). This provides a controlled testing environment and is particularly important to faculty who have automated their tests using ExamMaker but are not teaching a course in one of the regular computing labs.

- Upgrade the English Department Writing Lab (10 stations, 386s from Gist Hall 218). This is a learning assistance lab which provides mentoring in writing skills for all students on campus who need the assistance.

- Distribute the 31 older Macs and Wintel machines from Gist Hall 218 to the campus community. Five 486 PCs were used to replace 386 PCs in Siemens Hall 1, a 16 station open student lab, bringing all machines in that lab up to 486 architecture. Departments distributed the machines they received to faculty or graduate students or made them available for general student access.

- Hire an additional lab manager and an equipment technician to support the labs during Spring 1997 and increase the budget for student lab monitors.

In 1996/97, the University allocated the following additional funds to support the initiative:

$15,000	OAA Lottery funds to improve maintenance in the labs.
$10,000	OAA Lottery funds for equipment in Instructional Media Services.
$95,500	OAA discretionary funds permanently reallocated for personnel and combined operating expenses in the FDL and CDC.
$30,000	College of Natural Resources & Sciences funds for construction costs for Computing Science lab in Nelson Hall West 244.
$31,500	University funds for construction costs for the computerized Testing Facility.
$85,140	University funds for classroom improvements to support technology mediated instruction.
$16,500	Mix of funds for upgrade of four existing multi-media classrooms ($2,000 from each college and C&TS, $2,500 from Media Services, and $6,000 from the President's Office).
$70,900	University funds for extension of campus computer data network to the "door" of the Residence Halls, including installation of a fire wall (Housing is paying the costs of installing a "port per pillow" with costs to be recovered through subscriptions). Three residence halls were fully wired at the time of this report.
$24,000	Mix of funds for additional LitePro projectors ($16,000 from the President's Office and $8,000 from the HSU Foundation).
$100,000	University "end of the year" funds for faculty workstations (41 stations purchased centrally and distributed among the colleges). Again, these purchases were supplemented by additional purchases within the departments and colleges.
$15,000	MSF fees for paper costs in the labs.

1997/98

During 1997/98, the "in lieu of" funds were spent to:

- Upgrade the Macintosh LCII and Apple II interdisciplinary lab in Harry Griffith Hall 105 to Macintosh 7300s with Pentium cards (25 stations). Although used by faculty in a number of departments, the primary use will be Teacher Preparation. This will be a premier facility for developing the skills of future K12 teachers when it is in full production during the 1998/99 academic year. The facility includes workstations areas, general study areas that can be easily rearranged, and a raised observation room behind one-way glass.

- Upgrade the Testing Center to Performa 610s (12 stations).

- Construct a new information competency lab with Macintosh 7300s with Pentium cards in Library 121 (25 stations — this represented a mix of "in lieu of" funds and BATS funds). This lab will be used by C&TS for the two weeks surrounding registration for student and faculty orientations, and the following five weeks by the Library for its workshops on using the Library's electronic systems and locating information on the Internet. Faculty will be able to schedule one-shot class sessions in the lab to orient their students to computing requirements in their particular class. Such sessions are very difficult to schedule into the interdisciplinary labs because those labs' schedules are full servicing lab-based courses.

- Continue the additional lab manager and equipment technician, add three half-time assistant lab managers, and increase the budget for student lab monitors.

- Acquire a digital video editing system, including two faculty workstations, to improve the integration of services between Media Production and the Courseware Development Center.

- Supplement the budget for Academic Computing and the Courseware Development Center, particularly for student wages.

- Upgrade portions of the physical plant, including air conditioning the open student lab in Library 310A and remodeling space for Academic Computing's repair depot.

In 1997/98, the University allocated the following additional funds to support the initiative:

$15,000	OAA Lottery funds to improve maintenance in the labs.
$10,000	OAA Lottery funds for equipment in Instructional Media Services.
$95,500	Continuation of OAA discretionary funds reallocated for personnel and combined operating expenses in the FDL and CDC.
$72,450	OAA Student Educational Services funds ($22,450) plus University-wide funds ($50,000) to move the Testing Center and develop it into a Learning Assistance Center with Pentium computers (additional 5 stations) in the "Small Apartments."
$22,700	Office of Student Affairs funds ($4,700) plus University-wide funds ($18,000) to construct a Learning Skills Lab in House 71 with PowerMac and Pentium computers (5 stations).
$13,500	University funds to construct a Technology for Diversity lab with Pentium computers in the Multicultural Center (3 stations). This lab is open to all students on campus.

$23,825	University funds to provide a student access lab for low income students in House 56 using Pentium and PowerMac computers (6 stations).
$11,525	University funds to upgrade the Disabled Students Study Center in the Library to Pentium computers (4 stations).
$33,912	University funds to upgrade the Writing Center in Founders Hall to Macintosh 7300s (13 stations).
$29,000	University funds to develop two additional multimedia classrooms in Siemens Hall.
$10,000	College of Natural Resources & Sciences funds to acquire a WinFrame server to serve software to faculty and students on their home computers.
$23,000	HSU Foundation grant to pay student salaries in the student help desk. Also, $55,354 in salary (does not include benefits) was associated with reassignments of staff within C&TS to create the Information Technology Resource Center. A further $20,900 in C&TS operating expense funds were reallocated to the ITRC from the Director's Office and University Computing Services.
$48,000	From student computer lab printing support fee to provide printing in labs previously supported by MSF fees. Another $24,000 was distributed as student financial aid.

The University also provided $37,433 for public access workstations in the Library. This purchase, although it provides student access, is not included in the list above because it is more appropriately considered part of the *Unified Information Access System* initiative.

No specific funds were allocated for faculty workstations. However, the University provided the Office of Academic Affairs with a one-time, special allocation of $450,000 for instructional equipment replacement. A significant portion of these funds was spent on faculty workstations. Also, the College of Natural Resources & Sciences has begun to upgrade its UNIX Lab (15 SparcStations) and its Math Lab (25 older Macintoshes) using college funds in a project that will extend over two fiscal years. A final cost was not available at the time this report was written.

Summary

A $36 per student per semester student technology fee "in lieu of" funds could be considered only seed money for an *Assured Student Access* initiative. Actual expenditures, not including expenditures for faculty workstations, for Humboldt State University's pilot program were as shown on the following page. These figures do not include expenditures by the colleges (except those noted in the previous text); central computing costs for supporting electronic mail, Web services, the modem pool, or administrative analyst time because those costs are general in nature and not

specifically a part of the *Assured Student Access* pilot; or costs for Media Production and Media Distribution within the Instructional Media Services unit except for those costs directly associated with preparing classrooms to accept technology mediated instruction and with building or upgrading multimedia classrooms.

	1995/96	1996/97	1997/98
Academic Computing General Fund Base Budget	$ 417,413	$ 430,922	$ 536,171[2]
Student Fees for Printing	15,000	15,000	48,000
University Lottery Funds	37,200	25,000	25,000
Additional University Allocations	450,500	353,540	332,412
Student Tech Fee "In Lieu Of" Funds from CSU	521,464	534,744	553,464
BATS Funds from CSU	-	-	86,940[3]
Total	$1,441,577	$1,359,206	$1,578,997

Humboldt State University has used these funds to improve its infrastructure by building facilities to create courseware (FDL and CDC), deliver courseware (multimedia classrooms and classrooms with Ethernet connections), and provide locations to consume courseware (computing labs). This infrastructure consists of the following:

Classification	Number of Facilities	Number of Student Access Micros
LitePro projectors for check-out to classrooms	10	
Lap-top computers for check-out to classrooms	9	
Fully equipped multimedia classrooms	11	
Classrooms connected to Ethernet	75	
Courseware development laboratories	3	

[2]Includes $55,354 in salary for positions reassigned to create the Information Technology Resource Center plus associated benefit costs plus $20,900 in reallocated C&TS operating expense funds.

[3]Used to pay for part of the construction costs of the Information Competency Lab in the Library.

Interdisciplinary computing laboratories	8	203
Open student access computing laboratories	3	67
Learning assistance computing laboratories[4]	7	82
Discipline-specific computing laboratories[5]	14	227
Other available microcomputers for students[6]		119

There are a total of 698 microcomputers available on campus for student access. This is a microcomputer to student ratio of 1:11, which means HSU is very close to its 1:10 target ratio.

SUCCESS INDICATORS

It was mentioned under *APPROACH* above that HSU followed two tracks in implementing its pilot of assured student access: providing improved and additional equipment and support services for students; and implementing a faculty development and support program. This section of the final report discusses the outcomes experienced in each track.

Student Outcomes

During the first year of the pilot, the President of the Associated Students took weekly informal pools of students in the labs and reported the results monthly to the Director of C&TS. From these polls, it was clear that the students were satisfied that Humboldt State University was keeping faith with them in the implementation of this program. Further evidence of this may be in the students' continuing willingness to tax themselves to support computing on the campus. For example, in addition to recommending a student technology fee in 1995/96, the students recommended a new fee in 1996/97 to pay for printing costs in the computing laboratories. Paper costs in the labs had been paid from Materials, Services, and Facilities (MSF) fees of $3 per student per course in the labs. However, as more material became available on the Web, more students were using the labs for non-computer-lab courses, and more paper and toner were being consumed by students to print materials from the Internet. It became obvious to the students that those taking classes in the labs were subsidizing those who used the labs to complete the computing work for non-lab classes. At the same time, the President had announced that almost all MSF fees would be eliminated beginning with the 1997/98 academic year. Students approved using student funds to support printing in the labs, either through a "pay as you go" program or through a general computing lab printing fee, during the Associated Student elections in April 1997. About ninety percent of the student voting

[4]Includes the Information Competency Laboratory in the Library.

[5]Includes the Computing Science Laboratory in Nelson Hall West 244.

[6]Because of staff turn-over, it was not possible to include current counts for the College of Arts, Humanities, and Social Sciences in this report. Two year old data was used.

approved the initiative, and the campus has implemented a $5 per student per semester fee as the best way to support printing in the labs.

It also appears that HSU's strategy of encouraging student purchase of microcomputers by ensuring that students receive value in their course work (as opposed to requiring students to acquire a microcomputer or make other arrangements to access one out-of-class) has been successful. HSU also has encouraged parents to ensure that their students are properly equipped. Technology session were offered to prospective students and their parents beginning with HSU's Preview orientation during Spring 1996. Beginning in the Summer 1996 at Humboldt's Orientation Program (HOP) for incoming Freshmen and transfer students, an extensive technology program was offered to the parents, emphasizing the need for a personal computer. Parents are told that their students will have a difficult time completing their work at HSU without access to a microcomputer and the network. Prior to the beginning of the pilot program, during Fall 1995, Housing and Dining Services had surveyed all incoming Freshmen who would be living in the residence halls on their ownership of microcomputers. Only about 40% of incoming Freshman students brought a microcomputer with them in Fall 1995. Based on sales of Macintosh microcomputers in the Bookstore (approximately 400 during 1994/95 to students), total student ownership of microcomputers on the HSU campus could not have been more than 50%, and probably was not more than 45%. Since that time, the campus has advertized extensively to students and parents the importance of students owning their own microcomputer. During registration in December 1996, every student was surveyed as to ownership and access, with a response rate of about 49%. Ownership had increased to 56.2%, and 23.8% of non-owners had other access. With a total of 80% of those responding meeting the microcomputer requirement of the Assured Student Access Initiative, and with over 600 student access micros to be available on campus by Fall 1997, HSU reported in January 1997 that it felt confident that the University's student body essentially was in compliance with the microcomputer access requirements of the *Assured Student Access* initiative. Complete survey results are given in Attachment 5.

HSU no longer is attempting to survey its entire student body, but is concentrating its tracking on new students. First-time freshmen were surveyed in Fall 1997 during the orientation sessions provided by the Information Technology Resource Center, with a response rate of nearly 100%. Ownership had increased to 50.8% (compared to 40% two years earlier), and another 18.3% already had assured themselves of access through means other than ownership prior to arriving on campus, for a total of 69.1% of the first-time freshmen being in compliance with the goals of the assured student access initiative at the time they arrived on-campus. Also, another 11.4% already had made the decision to buy a microcomputer. HSU will continue to survey first-time freshmen at each orientation session.

During 1995/96, when the Information Technology Task Force was developing its position paper as part of the campus-wide strategic planning effort, many faculty were not willing to assign out-of-class work that required access to a microcomputer because they could not be sure that students would have the necessary access. At that time, class sections in the labs were restricted to two hours in length and an attempt was made not to schedule more than 50% of a lab's time for class time to ensure there would be sufficient computing stations available for homework. Since then, three-hour sessions have become more common and the number of computer lab classes has increased, so that

the 50% rule has had to be abandoned. At the same time, almost all faculty now will assign homework that requires computer access, and this does not appear to have created major problems. It is clear that students are assuring themselves of access and that personal ownership of microcomputers continues to grow. Departmental surveys in Business & Economics, Computing Science, and the Engineering disciplines show essentially 100% ownership in these computing-intensive programs.

Faculty Outcomes

As mentioned earlier, over 400 of HSU's faculty have used the services of the Faculty Development Laboratory and Courseware Development Center and about 100 courses now have a significant component of technology mediated instruction in them. The Environmental Resources Engineering Department has been dependent on computing resources for teaching data analysis and simulation of water and wastewater resources systems for twenty years. Beginning in the early 1990s, as office productivity software became a common item in the professional engineer's "tool kit" for engineering problem solving, the faculty of ERE began to incorporate the use of these tools in all elements of the curriculum. As the range of engineering applications for which these tools are useful increased, and as more engineering specialty software became available at reasonable prices, the number of courses in which computing is required has increased. Today, nearly every required and elective course in engineering requires the use of PC or Macintosh programs.

The School of Business and Economics also requires the use of computing in almost all its courses. The *Introduction to Accounting* course is available only over the network, with assignments submitted via e-mail. During Spring 1997, this course began using "chat rooms" for class discussions. The *Small Business Management* course was offered on-campus with an instructor during Fall 1996, as well as off-campus in Crescent City purely as a Web-based course. Business and Economics also has shown that there can be positive outcomes from the law of unintended consequences. Faculty are encouraged not just to place course materials on the Web, but also to include the text of their lectures in both text and audio formats. To make this simpler, faculty can record themselves during their lectures with a cassette recorder and a lapel microphone. Students transcribe the lectures onto diskettes which are given to the faculty member to edit. The CDC will transfer the recorded lecture directly to the Web site. However, most faculty choose to re-record the lecture from the edited transcript, using a sound booth, before the audio is added to their Web site. This approach allows students access to the presentation method (text or audio) that works best for them and is particularly valuable to those with vision or hearing difficulty. One faculty member in Business and Economics teaches an economic course on campus during the regular academic year and in Latin America during Summers. Both text and audio are included in the Web site for the course. He has had an advanced Spanish speaker translate the transcript and re-record it in Spanish for use by his Latin American students. When the project started, no one consciously was thinking about how easy it would be to internationalize the content of Web-based courseware. The CDC now also is working with German.

The *Geographic Information Systems* course is offered on campus with an instructor and also is being taken by students in several nations as a Web-based course. The focus of the curriculum in the Computing Science (CS) Department is quite naturally heavily burdened with hands-on

computing requirements. Both in the discipline core and the service oriented courses, computers and software literacy are crucial to the educational methods and pedagogical philosophy. The faculty in CS have made major adjustments to the curriculum over the past several years. Largely in anticipation of increasing requirements by all academic disciplines within the University, class designs for CS service courses have been altered to force a laboratory component into the curriculum at even the most fundamental course level. In addition to the regular suite of computing core courses, CS has established a special set of one-unit service courses which are designed specifically to enhance the literacy levels of students no matter what their academic major. The courses all require an elevated level of computer access.

Technology mediated instruction has been implemented successfully across the disciplines. As might be expected, the Art Department also has integrated information technology to an extensive level in its curriculum and includes a major computer lab component throughout its program. It has established a multi-media lab for advanced student work and provides student interns to work in the FDL and CDC. What might not be expected is that the College of Arts, Humanities, and Social Sciences has more courses with on-line components than any other college on the campus. For example, a leading innovative department at HSU is the Department of Religious Studies. Five courses, all developed in the CDC, are a mix of one, two, and three credit courses that can be taken entirely over the Internet. These five allow students to fill in their schedules and work on a flexible calendar where outcomes are more important than seat time. One of the best examples of the integration of technology in the curriculum is the *Silk Road*, a single, classroom-based course that awards three units in each of Religious Studies, History, and Geography (nine unit total). Available over the Web is a map of the Silk Road that students can traverse both geographically and through time. Linkages from the map provide course content for the three subject areas based on the time and location. During Summer 1997, the CDC completed its first interactive video course, *Herstory*, a history of the Goddess. The core of the course is a 45 minute video which can be viewed over the Web, either in its entirety or in short segments. The short segments include links to additional class materials and to other sites for in-depth materials on the specifics of the short segments. The CDC now is developing animated, 3D presentations of the major Creation Myths for the department.

The curriculum does not simply use technology for the delivery of education, it also makes use of technology as a tool. For example, in the Teacher Preparation program, students locate materials on the Web to prepare course presentations for various K12 grade levels. Faculty typically have students do poster sessions to present their work and to make other faculty aware of the possibilities.

HSU's approach to implementing technology mediated instruction has been permissive, not coercive. Because the resources (including training) necessary for faculty to design and develop courseware are available, faculty become excited about the possibilities and want to participate. This has been much more productive than what would have been expected if departments were assigned to integrate technology and had to develop specific plans under some oversight body. Rather than an assigned task to be completed, courseware development has become an attractive activity where faculty can unleash all their creativity. Creation of the FDL/CDC resulted from faculty-generated plans, and the faculty continue to provide vision, management support, and technical support to the operation and continuing expansion of the facilities through the Faculty Advisory Committee for the Center for the Support of Instructional Technology.

A complete list of FDL/CDC services can be found on the Web at http://www.humboldt.edu/~cdc. A large number of Web-based courses can be reached by following the *Services* link to *Web Based Courseware*. These are links to the actual courses, and a number of them are password-protected in accordance with Fair Use guidelines. Short examples of a number of courses can be reviewed at http://www.real.com/education/, which is RealNetworks' education page (RealNetworks in Seattle, formally Progressive Networks, has about 90% of the world market for audio over the Internet). Humboldt State University is one of a small number of American and Canadian universities whose work has been highlighted by RealNetworks on its Web pages.

LESSONS LEARNED/LESSONS SHARED

Humboldt State University's pilot program for *Assured Student Access* was built on two key premises. First, if students are to be encouraged to purchase computers, there must be content in their course work that justifies the investment. Second, implementing technology mediated instruction must be permissive, not coercive. Faculty must see the new technologies as positive additions to their teaching tools if they are to participate. HSU feels this approach has been a qualified success. That is, although 100% of HSU's student do not own their own microcomputer and modem, ownership continues to grow, and all students do have access. A phased implementation rather than a crash program has allowed HSU the time to put the support services in place to ensure both students and faculty can be successful.

Student Behavior

The pilot program has taught the campus a lot about student behavior and what HSU and the CSU can expect from student use of technology in the near term (next couple of years).

- *Dial-ups*. Access to the network lags compared to access to a microcomputer. In the Spring 1997 survey of all students, only 41.9% of the students who responded owned or had access to a modem. At first this appeared worrisome. However, modems were identified by the survey respondents as the number one product they intended to purchase while at HSU. In the Summer 1997 survey of new students, the number of students arriving on campus owning or having access to a modem had increased to 51%, possibly because it is becoming more difficult to purchase a computer without a modem. Of those who brought a computer to campus with them, 78.9% also owned a modem.

- *Lap-tops*. Lap-tops still are not popular with the students. In the Spring 1997 survey of all students, of those planning to make a microcomputer purchase, only 29.2% reported that they planned to purchase a lap-top and 70.8% reported that they would buy a desk-top. Reasons for not purchasing a lap-top included "too easy to lose or have stolen," "too easy to drop and break," "screen too small and too hard to read," and "costs more than a desk-top." Based on this experience, it seems very unlikely that large numbers of students will purchase lap-top units unless they are required to do so.

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- *Impact on Virtual Labs*. There have been some discussions in the literature to the effect that the higher education virtual computer lab of the future will consist of each student bringing his or her own lap-top to a regular classroom and booting up via a wireless modem onto a virtual LAN connected to the campus backbone. One variation has the connection being made by plugging in an Ethernet cable into the lap-top. The lack of penetration of lap-tops into the student market seems to make this unlikely in the near term. Further, many students who have purchased a regular modem or a cable TV modem for use from home probably will balk at purchasing a wireless modem or Ethernet card for use in the virtual lab. It will continue to be necessary to provide laboratory computing via the traditional computing lab into the future, at least beyond the life cycle of any equipment being installed today.

- *Application Software*. Even when students own their own microcomputers, it is unlikely that they will license the advanced, discipline-specific software they will need to do their course work. Some of this software is very expensive, and most students would find it onerous to license an initial copy, and much more so if they had to keep the license current so that all students in a class were using the same version. HSU is experimenting with WinFrame server support to determine if this is an effective way to make discipline software available to students and faculty on their personal computers. Although initial results appear positive, working through the licensing issues with the various software providers will be difficult.

- *Student Surveys*. Students do not like to complete surveys. On some of the early ITS surveys, student response rates were below 20%. Because students who owned microcomputers probably were more likely to respond to the surveys than students who did not, it is likely that these early surveys over-reported student microcomputer ownership and readiness for an *Assured Student Access* requirement. HSU attempted to avoid this problem in its Spring 1997 survey of all students. The survey document was distributed during Registration and kept simple enough that students could complete the survey while waiting in line. Although HSU believes the response rate was high enough to have confidence in the results (almost 50%), a higher response rate was desired. Surveys now are done during the orientation sessions for new students at the start of each semester. A printed survey document was used during 1997/98, and response rate was nearly 100%. Starting in Fall 1998, a Web-based survey document will be used in the orientation sessions as one of the orientation exercises, and the response rate is expected to be 100%.

- *Student Orientations*. Although students always had identified the need for orientation sessions as a high priority, turn-out at the first couple of sessions during Summer 1997 was disappointing. Many students felt that they did not need to come because they already were computer literate. However, HSU wanted them to attend to ensure there were no problems in activating their accounts on the academic computing, e-mail, and Web servers and that they knew how to operate in the dual-platform environment HSU uses in its computing labs. The HSU Bookstore solved the problem by offering a coupon good for a 10% discount on the purchase of computing equipment and supplies to each student who attended. In addition, if the student simply brought the coupon to the Bookstore, Bookstore staff took a digital photograph of the student, downloaded it onto a free diskette, and gave it to the

- student for uploading onto the student's Web page. The rest of the orientation sessions were packed.

- *Follow the Help Desk*. GH 218 is HSU's premier open student computing laboratory. It contains 42 dual-platform microcomputers (Macintosh 7200s with both PowerPC and Pentium processors, 4 laser printers, and 2 flatbed scanners). There often is a line of students waiting for access to a computer in the lab when machines are idle in other labs on campus. When questioned, students in line typically said they came to this particular lab because the Help Desk was there and, having got in the habit of using this lab and not knowing if any open spaces were available in other labs, would continue to wait even if they did not expect to need the services of the Help Desk. HSU will develop a method of posting the number of available, unused computers in each lab in a conspicuous location in GH 218 during 1998/99.

Lab Design

HSU has experimented with a number of different designs for computing labs. A simple schematic of the design found most effective for teaching is included as Attachment 6. In this particular design, there is an overhead projector that is controlled from the instructor's station. Almost all student stations are fully compliant with the requirements of the Americans with Disabilities Act, and stations 17 through 20 provide significantly wider space for maneuvering wheelchairs or placing adaptive equipment on the counter top. The instructor has walking space across the front of the room and can easily see the screens on all the student workstations.

HSU would prefer to build labs that are larger than its standard 24-student lab: the larger the lab, the less cost per station to build. HSU's cost for building a 25-station lab (one instructor station plus 24 student stations) such as the one shown in Attachment 6, including all costs for equipment, software, network distribution, power, air conditioning, carpeting, and furnishing, is about $225,000 (the cost to refresh a lab which already has adequate networking, power, and air conditioning, is about $150,000). By comparison, the cost for building the GH 218 lab with its 42 stations was $325,000. However, the architecture of the campus (which provides small classroom spaces for intimate instruction) requires that HSU build mostly smaller labs.

Smaller labs also are less efficient in the use of faculty time. HSU will experiment during 1998/99 with linking labs together so that faculty will be able to teach to two labs simultaneously. Particular attention will be paid to ensuring that educational quality is not compromised. This experimentation also will allow faculty to develop their distance learning skills.

Funding

When the *Assured Student Access* program was conceptualized, a student technology fee of $36 per student per semester appeared to be a reasonable amount to supplement the institution's budget. HSU was spending about that amount ($34 per student per semester) to support its existing interdisciplinary and open computing laboratories. However, actual cost of the program in 1997/98 was $110 per student per semester. It is clear that implementing a program such as this requires

contributions from the entire campus, as can be seen from the sources of funds identified for the internal reallocations described under *PROGRAM SPECIFICS* above.

HSU has provided almost a third of the funding required to operate the pilot program through on-campus reallocations. HSU's on-going commitment includes a $240,000 per year increase over the 1995/96 base to support this program from HSU sources. This represents a sustained expenditure of $50 per student per semester. Adding in the $36 per student per semester in "in lieu of" funding results in available funding of $86 per student per semester. Full funding for a refresh cycle of three years for the interdisciplinary, open, discipline-specific, and learning assistance laboratories; Help Desk services; and courseware development support would require an expenditure of approximately $185 per student per semester, which leaves a short-fall of approximately $100 per student per semester.

☎ Please direct any questions concerning this report to Bill Cannon, Director of Computing & Telecommunications Services, Humboldt State University, at either (707) 826-3815 or cannon@laurel.humboldt.edu.

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Attachment #1

INFORMATION TECHNOLOGY POSITION PAPER FOR THE HUMBOLDT STATE UNIVERSITY STRATEGIC PLAN, SPRING 1996

As a CSU pilot campus of assured student access to computing, Humboldt is moving purposefully toward the integration of technology mediated instruction within the curriculum. Information technology will be used to enhance teaching and learning and not to supplant the humanistic qualities of our community of scholars and learners.

Using Information Technology to Support and Enhance Learning

The mission of Humboldt State University is to provide an environment where learning is the highest priority. The appropriate use of information technology is an important component in Humboldt's strategic plan for fulfilling its mission.

Strengths

Humboldt State University's greatest strength is its students. In "An Analysis of Student Responses to the College Student Experiences Questionnaire," (Fall 1995) C. Robert Pace reported that "the special character of HSU emerges as a blend of virtues from highly selective liberal arts colleges and doctoral granting universities." Our "liberal arts" students take more "science" and our science students take more liberal arts than typical at our cohort comprehensive universities. One of the results is that our students are comfortable with the use of and effective in the application of technology in their studies. This is borne out by the 1993 Student Needs and Priorities Survey (SNAPS) as reported by Dr. Paul Crosbie in "The Forest for the Trees," (1994). HSU students ranked first or second in terms of frequency of use in 10 of 12 computing domains (word processing, electronic mail, spreadsheets, graphics, library, etc.) among the students in the California State University. Further, they ranked first in terms of interest in using computers in the future in 10 out of the 12 domains and second in the remaining 2 domains. Our students have expressed their interest in an even more concrete form, becoming the only student body in the CSU to approve a student technology fee (Fall 1995) by campus-wide referendum and having the highest enrollment rate in the CSU to the SprintLink Internet subscription services.

Of equal importance to the strength of our students is the quality of Humboldt State University's faculty. Our faculty are dedicated to being the best teachers possible first and foremost. They know that the most successful students are those who are active learners. Integrating technology mediated instruction within the curriculum is proving to be one of the most effective methodologies for moving from a "teacher-oriented" environment to a "learner-oriented" environment that results in not just more successful students but also the development of life-long learners able to compete and thrive in today's global village. Evidence of our faculty's commitment to effective use of technology mediated instruction is the overwhelming response of faculty in using the Faculty Development Laboratory and Courseware Development Center opened in early Spring 1996.

Opportunities

The CSU is moving forward toward assured student access to computing resources. As one of the pilot schools for the assured student access initiative, Humboldt is positioned to implement the initiative more aggressively than most of the other CSU institutions. Under the initiative, students are encouraged to purchase their own microcomputers and establish access to the Internet, but will not be required to do so if they can assure themselves of access to a micro, either by rooming with someone who has a micro, using one of the campus' open computing labs, or checking out a "loaner" unit from a university pool. The goal of the program is to ensure that when instructors make assignments, they know that each student has assured him or herself of access to the appropriate computing resources necessary for completion of those assignments.

If students are to be encouraged to purchase computers, there must be content in their course work that justifies the investment. Technology for technology's sake is not a goal of the initiative – effective use of information technology to enhance learning is. HSU has created a position of Faculty Development Coordinator and established a Faculty Development Lab and a Courseware Development Center to implement this goal. This structure has become the model for courseware development in the CSU. Instructors who have implemented a significant level of technology mediated instruction in their programs already report that students learn quicker, learn more, and score higher.

The institution is involved actively in developing effective technologies to support learning. Examples of current technology at HSU include using active web pages and PowerPoint in classroom presentations and posting lecture notes on the web supplemented with links to additional information wherever it may reside on the Internet. The materials are then available for review and as general study aids from students' home computers and the campus computing labs. Another example is online testing with immediate feedback to the student and grade reporting to the instructor. Technology under development melds active web pages with CD-ROM video to create a new textbook for the future. This will be an important technology for supporting a more flexible schedule that will allow our students to learn when they are available rather than

being constrained by fixed class times. Supporting services such as electronic mail and home pages for all faculty and students, list servers, and conferencing systems also have or are being implemented. HSU already has an integrated automated library system and the librarians and staff have held a long-standing commitment to using technology to enhance access to materials for faculty, staff, and students wherever the materials or the user is located. As part of its efforts to ensure that students and faculty have access to the information and scholarly resources required for learning and research, HSU is developing electronic reserves and creating a searchable database of copyright-free images. The imaging project will permit access to unique resources such as slide collections assembled by the faculty, to the benefit of the University community and scholars everywhere.

These same technologies can support the distance and the self-directed learner. Humboldt has moved beyond the old distance education model of broadcasting a "talk and chalk" presentation over a satellite to a passive audience. We see a future of active learners being supported by the technologies and techniques being developed on this campus. Humboldt is blessed with strong, unique programs that it can provide to the other CSU campuses, the nation, and the world, including Native American Studies, Environmental Engineering & Sciences, undergraduate Oceanography, Forestry, and Geographic Information Systems. Humboldt should position itself to take a leadership role in the support of distance learning in these and other areas.

The emphasis on information technology brings into question how technology mediated instruction can be used without losing the socialization benefits of a higher education (e.g., the development in students of an ethic of working within the "community"). We need to find ways to improve upon the socialization of our students in the increasingly fragmented world in which we live. Digital tools are feared as devices that will make our world more impersonal, and indeed they offer that threat. However, if we are creative, we will find ways of increasing community and flesh-and-blood contact among students and faculty by using machines in intelligent ways. We already see evidence of this at Humboldt where some faculty are spending more individualized time with students because technology mediated instruction relieves them of some of the time they once spent standing in the front of the classroom, although we also have seen the opposite where technology has been used to increase class size and actually reduce the amount of contact between instructor and student. This may be our biggest challenge, but it also may be the area where HSU has the most to offer to the other CSU campuses.

Weaknesses

Humboldt's greatest information technology weakness is its lack of sufficient current technology computing labs. The existing labs are oversubscribed and many contain old equipment that is difficult to maintain. The impacts are many: most labs are scheduled fully for class time during the day, resulting in little open time for students who need the labs to do assignments; some faculty do not develop a computing component for their courses because they know they will not be able to get lab time in which to present it and their students will just add to the load trying to get into the labs during open periods to do assignments; and, in order to meet the most needs of the greatest number of users, the campus has had to focus its limited resources on inter-disciplinary labs, leaving no money for specialized labs in the disciplines. This problem needs to be attacked on a broad front. It would be easy to say that, under the assured student access initiative, this is a student responsibility. However, the CSU is California's "accessible" university system, and placing too large a financial burden on the students will reduce that accessibility. Although space is limited, HSU needs to build three to four additional interdisciplinary labs. One of these labs should be available only for short-term scheduling to allow faculty who include a short technology mediated instructional component in their courses to have access. It needs to modernize out-dated equipment and maintain sufficient spares to keep working machines at each station. It also needs to build several department labs where the need is great, for example for the Computing Sciences Department. It needs to place some microcomputers in locations where students do hands-on work and need access to computing, for example in the Chemistry, Geography, and Geology labs. It needs to budget funds for room monitors so that some of the existing department labs can have open hours. Further, it needs to modernize and expand its unscheduled labs and extend their open hours so students can have more access. It needs to sprinkle some low cost terminals around campus in areas of high student traffic so that expensive lab resources are not consumed for electronic mail. Finally, it needs to make its lab servers available over the network so that students who have their own microcomputers can get access to the specialized software they need without having to come in to use a lab micro. The costs of meeting these needs annually will be twice the sum of what is budgeted currently for labs and the expected revenue from the student technology fee. The campus needs to reallocate funds if assured student access is to be a success.

Another weakness is lack of faculty workstations. Also, many instructors who do have microcomputers do not have lap-tops that can be carried into the classroom. HSU has some portable projectors and lap-top computers available for check-out by the faculty. The availability of loaners allows even instructors who do not have a microcomputer to present materials in the classroom. For example, a faculty member might design course materials in the Faculty Development Lab, have it programmed in the Courseware Development Center, and present it in the classroom using the loaner equipment. HSU intends to acquire more loaner equipment as funds are identified for this purpose. However, loaner equipment can never take the place of having a workstation on the desk. The CSU's Information Technology (I/T) Survey during Fall Semester, 1995 resulted in a head count of 591 faculty having access to 166 current technology workstations and 196 obsolete technology workstations. HSU must, as part of the execution of its technology plan, institute a faculty workstation program that ensures every faculty member has access to appropriate computing and networking resources. The program will need

a component to coordinate the use of software on the campus. Currently, when the latest version of software is implemented in the labs, there is no corresponding effort to update the software on faculty computers.

HSU has a fiber backbone network, but it does not extend into all of the campus' buildings. HSU has extended Ethernet connectivity to every major classroom building on campus, although to some via only 10 Mbps Ethernet extenders, and to 75 classrooms. This allows instructors with a microcomputer and a projector to use any of these classrooms to access technology mediated instructional materials that are available over the network. However, these classrooms were designed for chalk and talk, not for presenting technology mediated instruction. HSU needs to design its "classroom of the future" and modify existing spaces as opportunities to do so arise.

All of this technology places a tremendous load on the campus network. Network capacity needs to be increased and all buildings on campus connected, and problems with the current network need to be addressed. None of HSU's strategic vision for information technology will be accomplished unless it is able to implement a ubiquitous network. Funds to be made available to the campus by the CSU during AY 1998/99 will help improve the network infrastructure but will not pay for the full distribution of network connections throughout all our buildings. HSU needs to develop a plan for completing the network, including identifying the network services (authentication, security, name service, etc.) which are not offered by the current network but which must be implemented for HSU to be successful.

Using Information Technology to Support and Enhance Student Services

The number of full-time equivalent students (FTES) has increased by 1,700 since the last time a new position was added in the Office of Admissions and Records. The CSU expects Humboldt to grow to 8,000 FTES, an increase of nearly 1,100, by the year 2005. Information technology must be the engine that drives the campus' business process improvements to allow it to serve this growing student body without a proportional increase in support staff.

Strengths

Humboldt's faculty, staff, and administrators are dedicated to the concept that this is a "student centered" campus. This focus is what makes HSU and its students so successful – the emphasis on small classes, personalized attention, and providing a supportive environment, all of which are hallmarks of the HSU experience. This results in an organization willing to embrace technological change if it can be shown to improve services while maintaining the feeling of family within our community.

Opportunities

HSU has the opportunity to provide on-demand student services through self-service mechanisms. New technologies, particularly the web, make it practical for students to take care of their business and administrative needs anytime from anywhere. HSU will implement a student access module on the web that will allow students under appropriate security safeguards to access their own student records in order to view and print their course schedules, lists of available course sections, unofficial transcripts, and their account statements (fees assessed, payments received). They will be able to update some information, such as addresses. After seeing their advisor, they will be able to register for and add/drop classes. In the near future, they will be able to make fee payments through the same web service. Every microcomputer in the campus labs, micros situated in other publicly available areas, and home micros with Internet access then will be self-service kiosks. These services also can be delivered via physical kiosks, which can have particular application in providing accessibility to the disabled. Vendors will continue to develop new products, and HSU should be prepared to acquire those that will be of benefit. Expected over the next several years are web services for faculty and staff that will provide degree audit/advising information and another web service that will allow students to submit and track their financial aid requests.

Corresponding access to services also is available through interactive voice response (IVR) systems. HSU already has implemented an IVR system that allows students to track the status of their financial aid requests. This system is supporting an average of 1,300 callers per week, callers who otherwise would have had to reach one of the limited number of staff members via phone or visited the financial aid office. HSU will extend these services to support registration, add/drop, and fee payment.

HSU should continue exploring technologies to support its business services as effectively as possible to ensure that the cost of doing business subtracts as little as possible from the resources available for providing the learning environment. Technologies that need to be explored include imaging of admissions and financial aid applications, electronic forms, and the expansion of One Card services (a single ID card that can be used as a debit card and electronic key).

Weaknesses

Because of the way administrative computing support historically was provided in the CSU, HSU does not have an integrated suite of software. For example, the student information system is supported by Computing and Telecommunications Services while the financial records system is supported by the Chancellor's Office. There are separate systems for housing administration and alumni/development. Because payroll services are provided through the State Controller's office, there is no single database on the campus which includes the names of all students, faculty, staff, and administrators, but many names show up in multiple databases. All of this results in duplicated effort, the need to go to multiple sources for information, and difficulty in coordinating or implementing services such as directory services,

password systems, and eligibility tracking. HSU needs to move toward more integrated systems if it is going to be successful in implementing new technologies that will allow it to support a growing number of students.

Developing and Maintaining a Technology Plan

Humboldt State University has a vision for the role information technology will play in its future. Now it must develop and maintain a technology plan that will make that vision a reality.

Strengths

HSU is positioned to build on its successes. Faculty, staff, students, and administrators all have recognized the importance of information technology as a subject of study, as a tool to improve instruction and learning, and as a strategic asset in the operation of the campus.

Opportunities

A great deal of activity is occurring on the HSU campus which impacts its information technology resources: the pilot for the assured student access initiative; the creation of the faculty development coordinator position, Faculty Development Lab, and Courseware Development Center; the design and testing of technology mediated instructional materials; the enhancement of electronic services through the Library; the expansion of distance learning programs; and the implementation of on-demand student services. In order to coordinate these and their follow-on activities, share resources, and benefit from synergies, HSU will develop a technology plan which addresses all aspects of the use and support of information technology by its students, faculty, staff, and administrators. The plan will identify specific projects for a three-year window and be revised annually. It will include both budget projections and priorities for these projects as well as identify equipment replacement funding requirements for maintaining the infrastructure. It will address how user support services will be provided, including orientation, training, consulting, documentation, and development. This is of critical importance because currently there is no effective support structure for faculty, staff, students, and administrators. The plan also will address how technical support services will be provided, including network support and maintenance support. It will specify feedback mechanisms (e.g., surveys) that will allow the faculty, staff, and students to have continuing input into the planning process.

Weaknesses

The development of technology plans in the past has often amounted to the building of a wish list that was beyond the funding capability of the campus. This has resulted in some in the campus community concluding that such planning is a useless exercise when nothing substantial appeared to occur: the plan was put on the shelf. It will be very important for the new technology plan to be a living document grounded in reality: it must be a plan which is within HSU's capabilities of implementing, both in terms of our available human capital and within our financial ability to provide a sustaining budget that will ensure we maintain currency. This is important to the students so they will know what resources they can expect to be available; it is important to the faculty when they are designing curriculum; it is important to the departments when they are determining course offerings; and it is important to the complete campus community when it reviews budget and program priorities.

Attachment 2

Extended Hours in Gist Hall 218

Counts Every 30 Minutes by Day

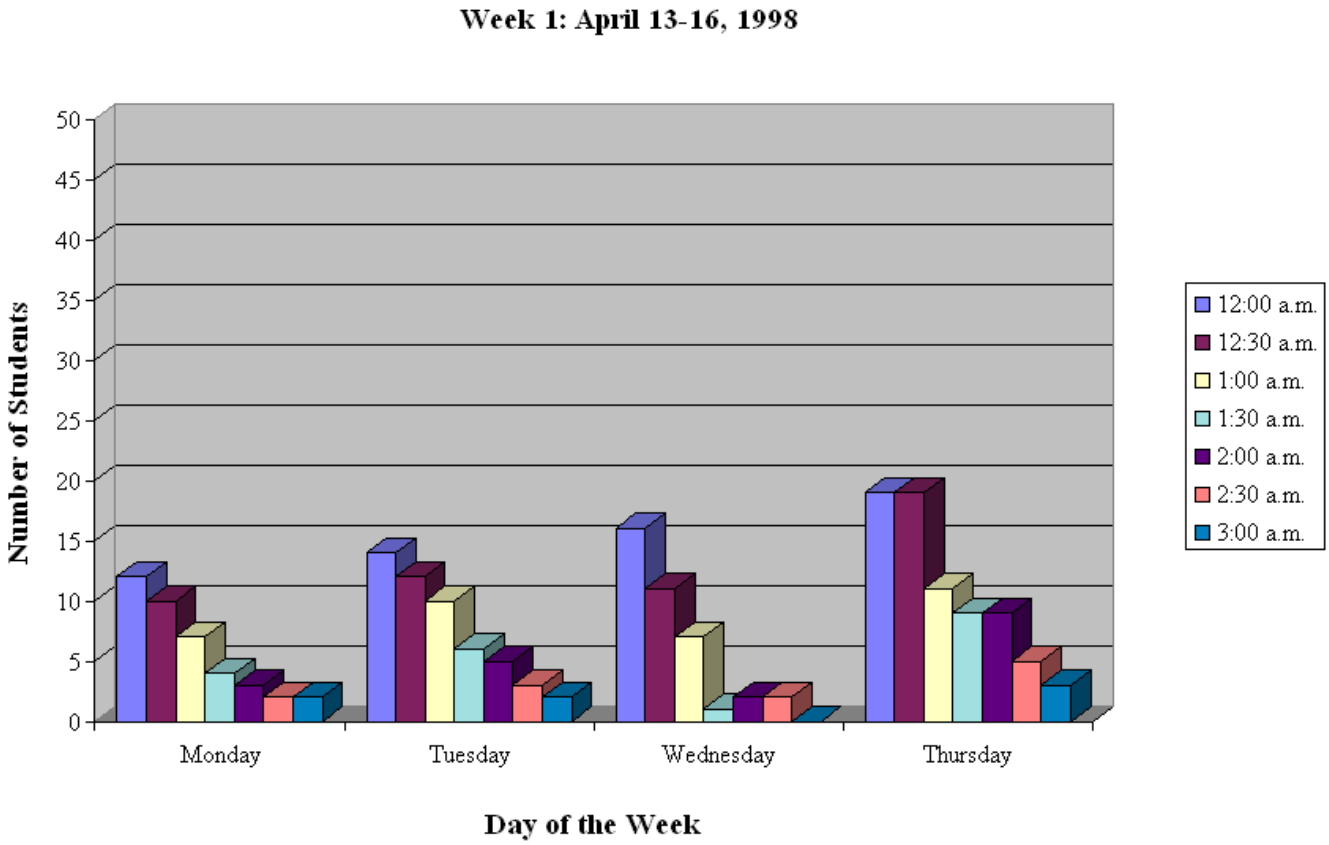


Figure 1

Extended Hours in Gist Hall 218
Counts Every 30 Minutes by Day

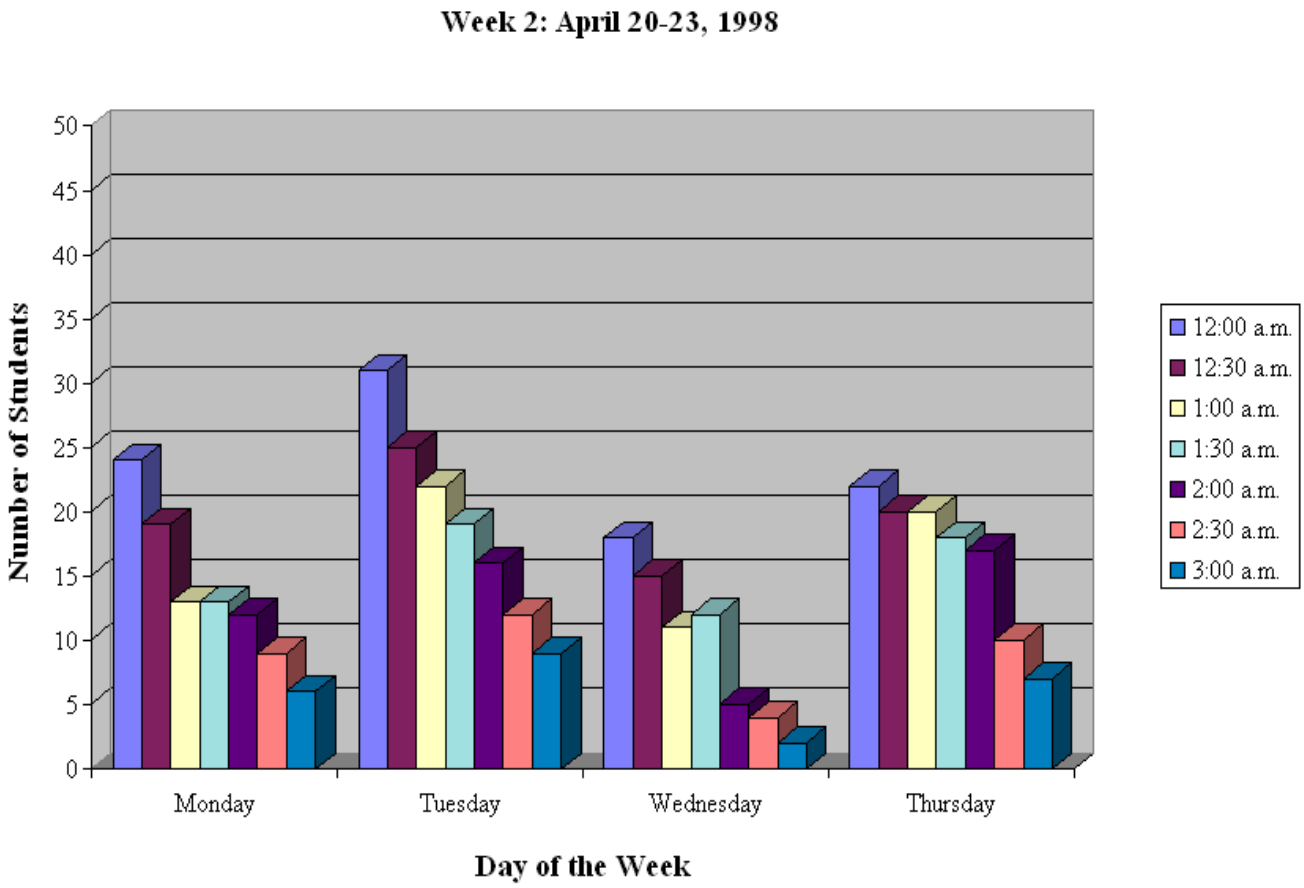


Figure 2

Extended Hours in Gist Hall 218
Counts Every 30 Minutes by Day

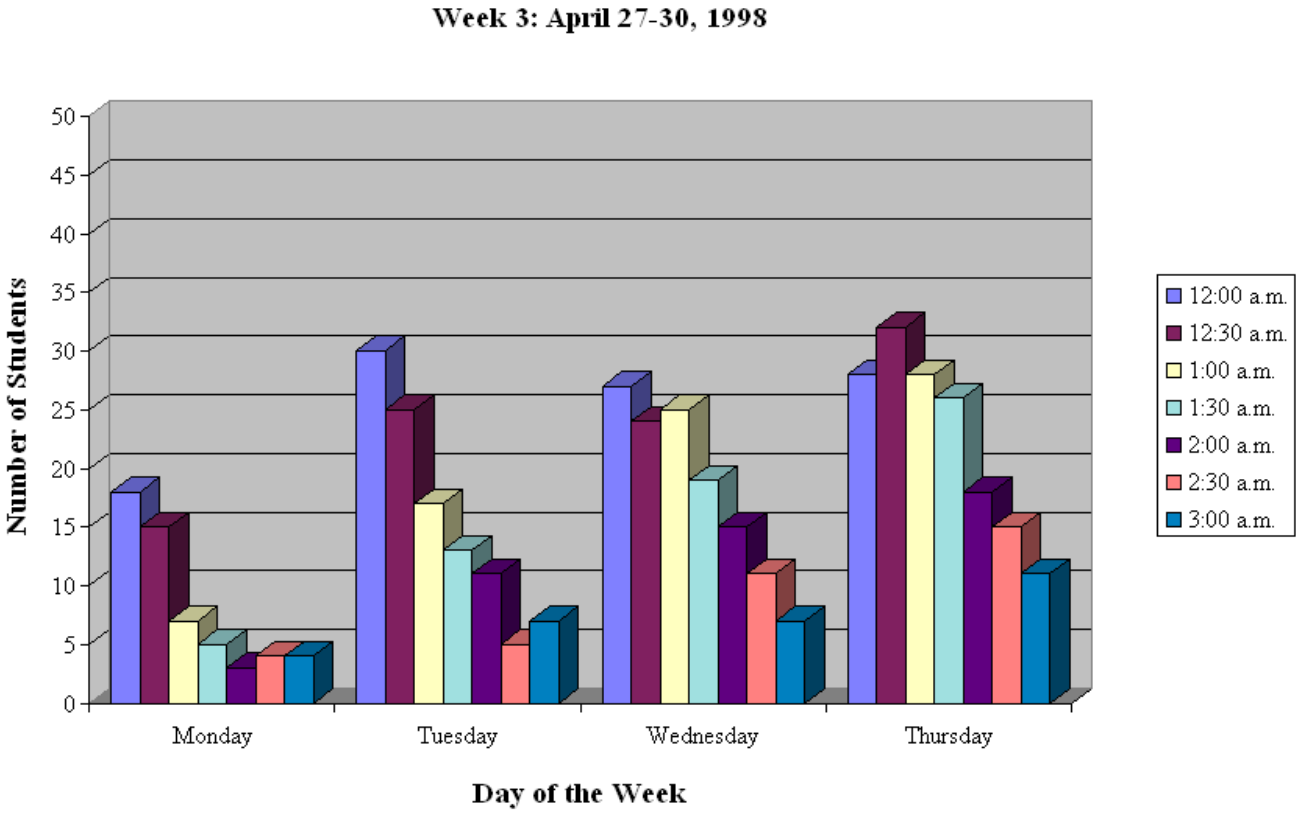


Figure 3

Extended Hours in Gist Hall 218
Counts Every 30 Minutes by Day

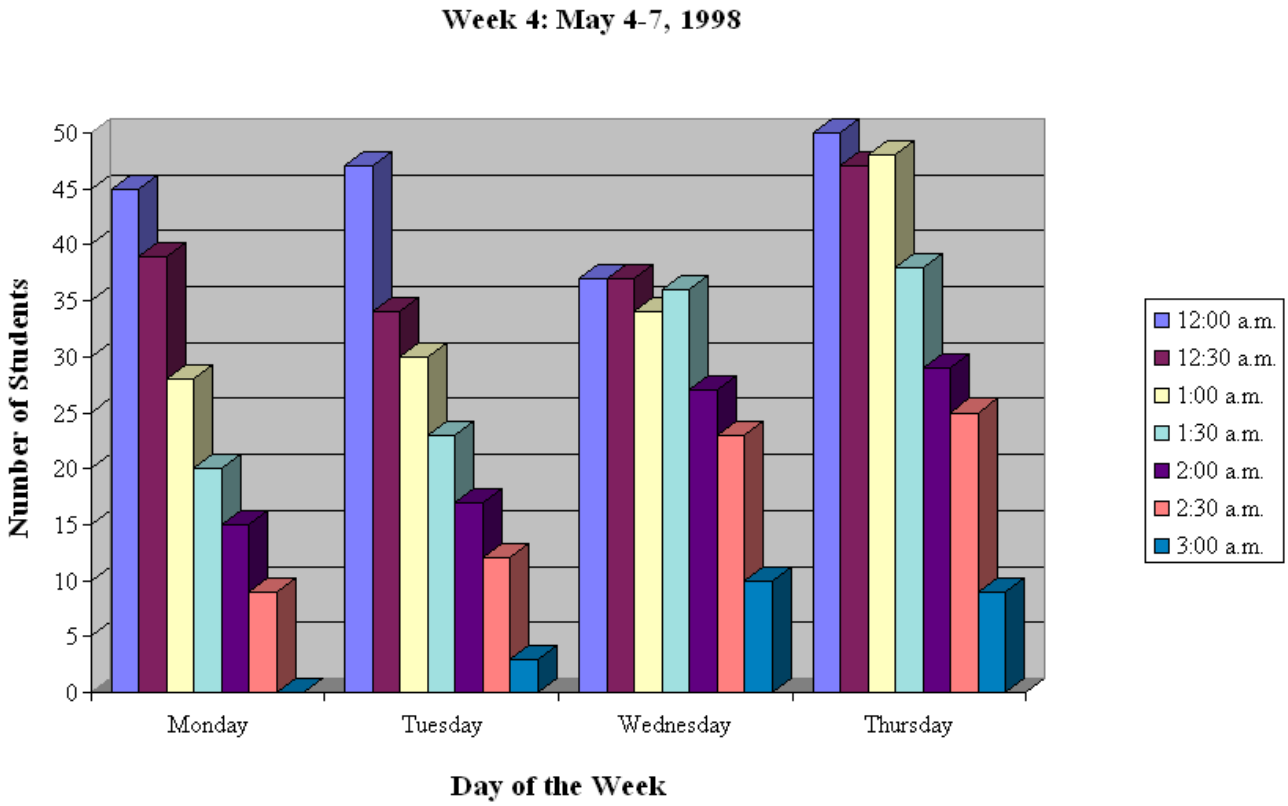


Figure 4

Extended Hours in Gist Hall 218
Counts Every 30 Minutes by Day

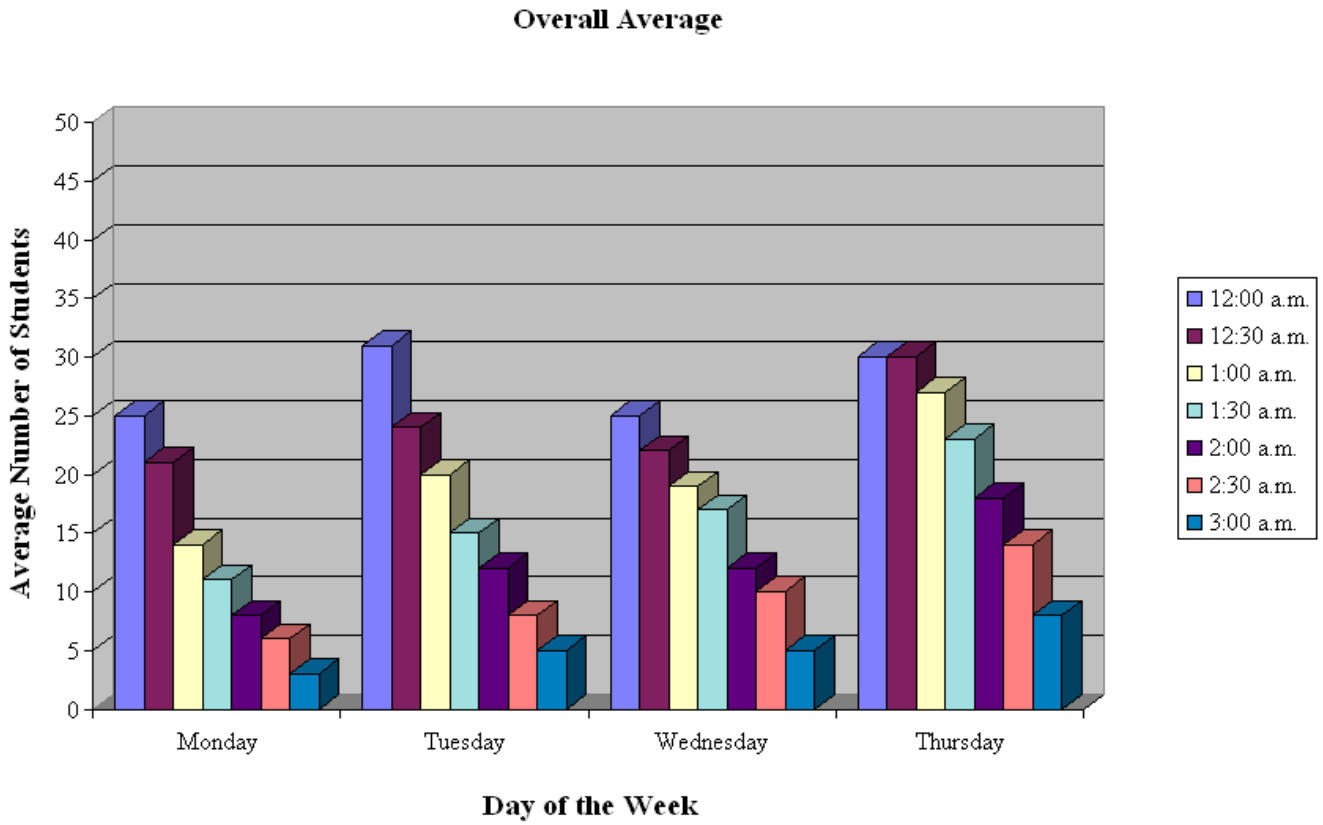


Figure 5

Extended Hours in Gist Hall 218

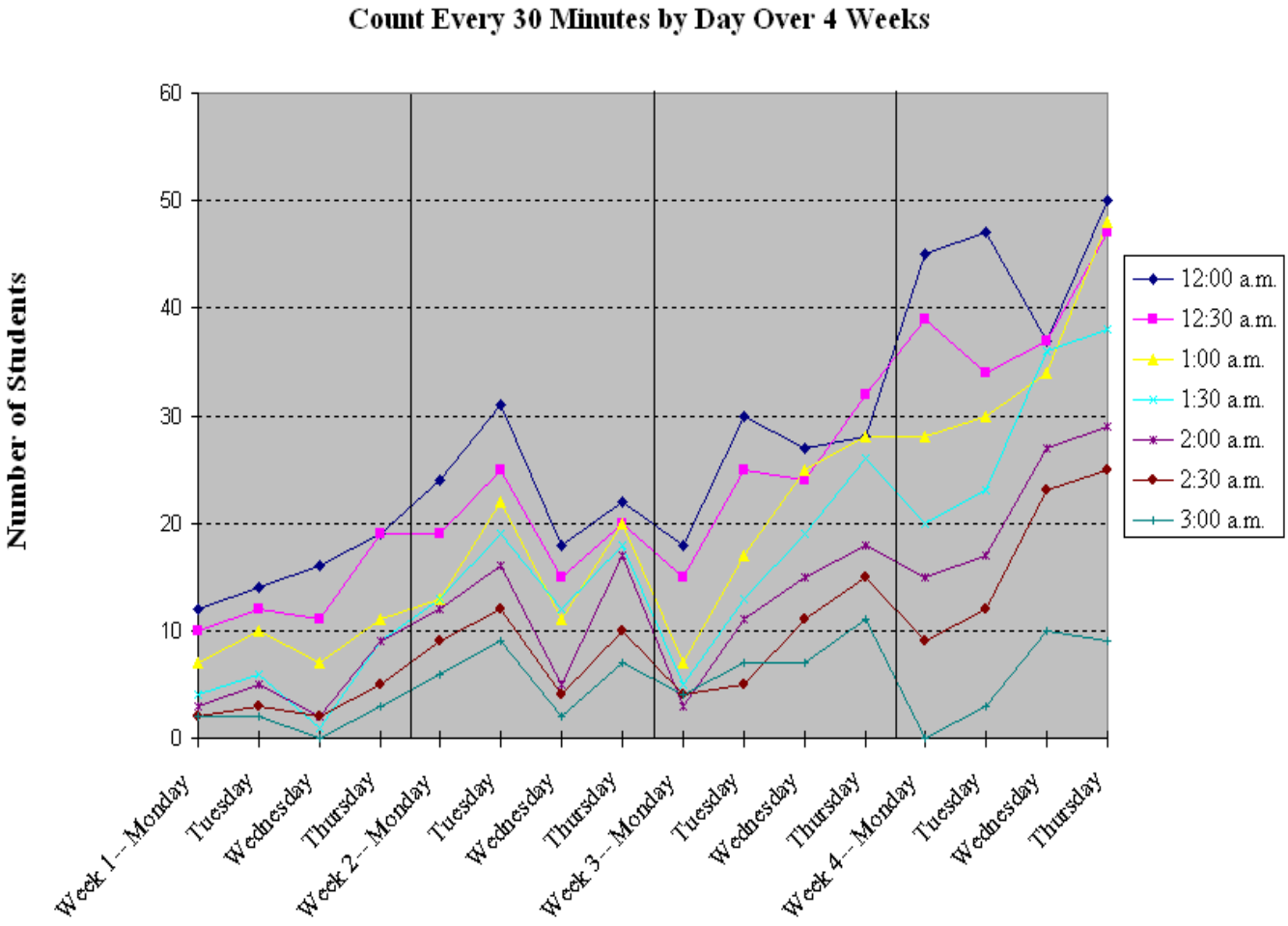
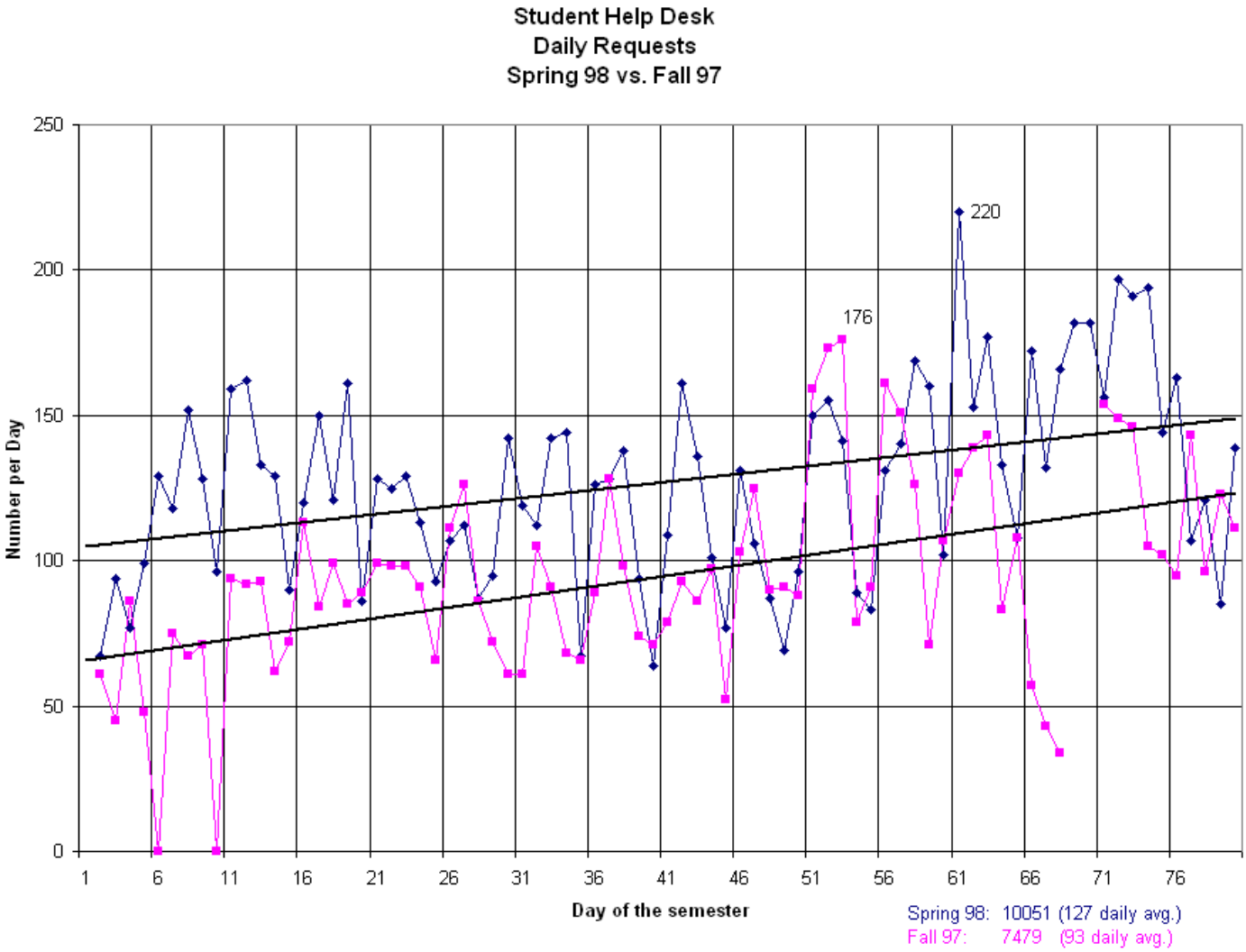
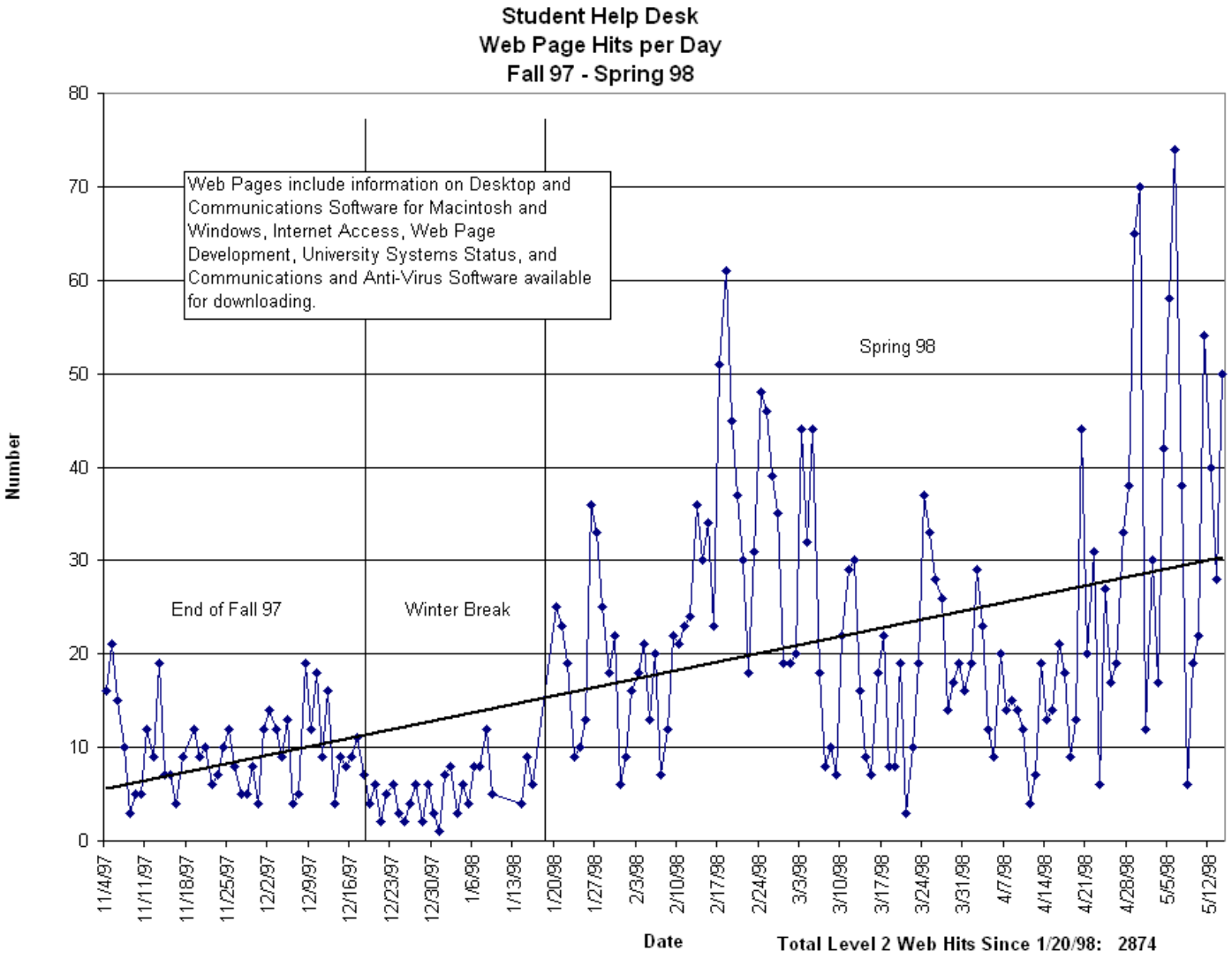


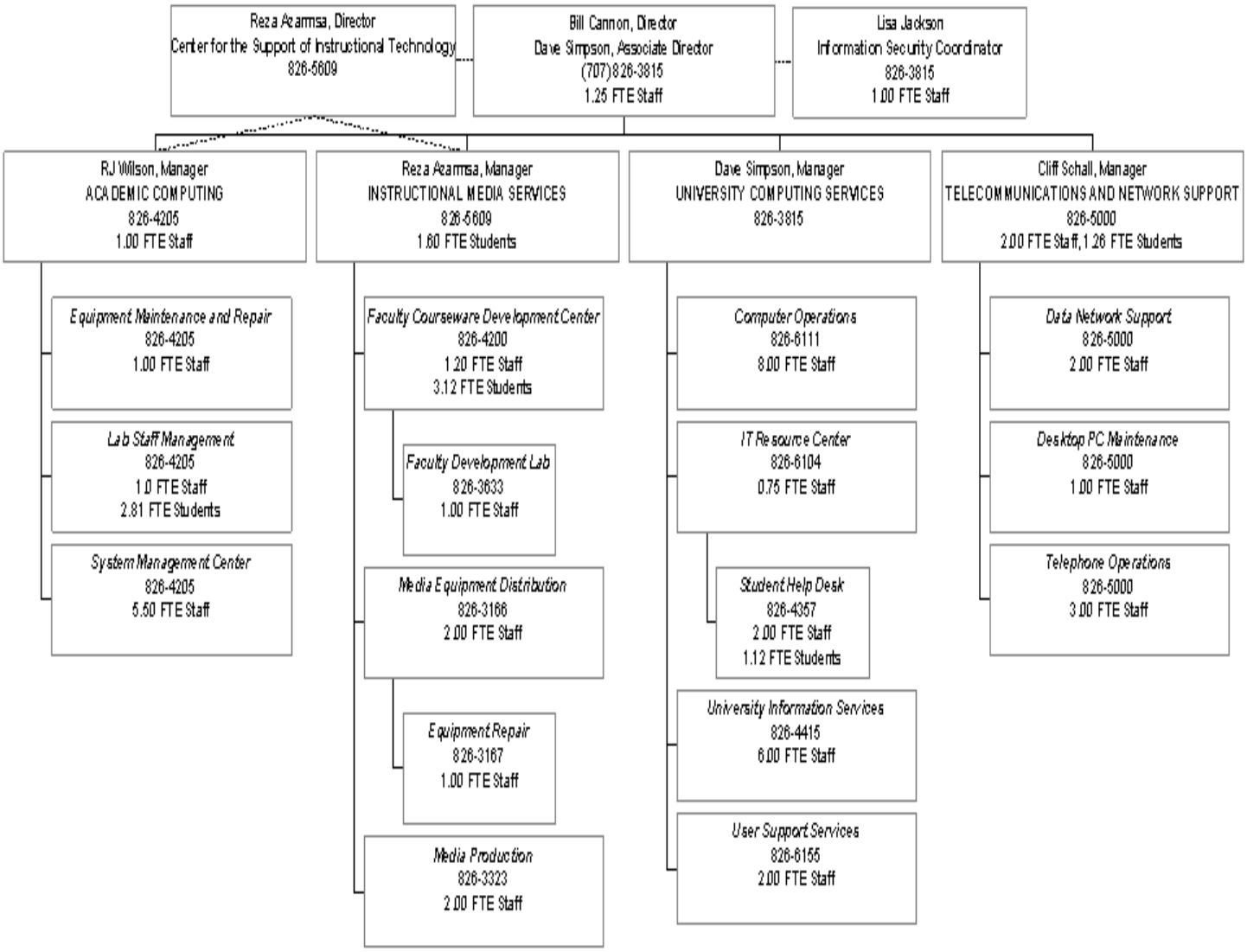
Figure 6

Attachment 3




Student Help Desk
Web Page Hits per Day
Fall 97 - Spring 98
Web Pages include information on Desktop and Communications Software for Macintosh and Windows, Internet Access, Web Page Development, University Systems Status, and Communications and Anti-Virus Software available for downloading.
End of Fall 97
Winter Break
Spring 98
Number
Date
Total Level 2 Web Hits Since 1/20/98: 2874

Attachment 4
HUMBOLDT STATE UNIVERSITY
Computing and Telecommunications Services



ORGANIZATION CHART dated 27 May 1998.
Student FTE projected for 1998/99.

HUMBOLDT STATE UNIVERSITY

CENTER FOR THE SUPPORT OF INSTRUCTIONAL TECHNOLOGY

FACULTY ADVISORY COMMITTEE

March 19, 1998

Mandate

The general mandate of the Faculty Advisory Committee to the Center for the Support of Instructional Technology is to foster the development of innovative instructional technology tools and products at Humboldt State University. The committee is authorized to:

1. Provide guidance and recommendations to the unit directors/managers on the operation of the Center for Support of Instructional Technology and the Instructional Media Services and Academic Computing divisions within Computing and Telecommunications Services.

2. Provide a forum for faculty discussion of issues relating to instructional technology.

3. Apprise the Educational Policies Committee of the Academic Senate and the University Curriculum Committee of issues relating to instructional technology and provide advice as appropriate.

4. Promote faculty issues relating to instructional technology to the administration.

5. Support efforts to obtain external funds and resources to aid in developing and promoting instructional technology.

Structure

The Faculty Development Coordinator shall serve as Chair of the Committee. The Chair shall call meetings and issue the agenda. All committee members are expected to submit agenda items.

The Director of the Center for the Support of Instructional Technology shall provide staff support for the Committee.

Membership

The Faculty Advisory Committee shall be comprised of the following membership:

1. One faculty representative from each academic college recommended by the college's computer advisory committee, or by the college's Dean in the absence of such a committee, and appointed by the Vice President for Academic Affairs. Term of appointment will be for two academic years.

2. One faculty representative from the Library recommended by the University Librarian and appointed by the Vice President for Academic Affairs. Term of appointment will be for two academic years.

3. Chair, Educational Policies Committee for the Academic Senate.

4. Chair, University Curriculum Committee.

5. Faculty development Coordinator.

6. Dean, Undergraduate Studies.

The Director of the Center for the Support of Instructional Technology and the Director of Computing & Telecommunications Services will serve in an *ex officio* capacity.

Use of Faculty Courseware Development Center Services:

The Faculty Courseware Development Center (FCDC) is funded by Academic Affairs for the sole purpose of providing services in support of the instructional program. Services will be provided at no charge, other than for consumables, to HSU faculty members when used in support of classroom instruction or in anticipation of potential classroom use. Because the FCDC does not have a special budget for consumable materials (e.g., diskettes, transparencies, etc.), faculty should provide such items. In case of availability, FCDC may use its own limited supplies and charge the appropriate department or faculty. The FCDC shall maintain a list of standard services and technologies available to faculty. Requests for services and technologies beyond those generally available may require the faculty's participation in obtaining additional funding. All requests for services from individuals and departments not directly engaged in classroom instruction will be subject to a service charge to compensate the instructional program for use of resources by non-instructional units or for non-instructional purposes.

The FCDC will provide a working station for faculty drop-ins in the Faculty Development Laboratory. Faculty who wish to use the facility on a "do-it-yourself" basis and take advantage of the FCDC's expertise, may use the workstation. The use of this workstation will be on a first-come, first-served basis.

Definitions:

Instructional is defined as projects in direct support of instruction under the supervision of a faculty member in an academic department or the Library. A reasonable level of participation by HSU in support of activities originating from the CSU system of sister campuses and intended for the overall enhancement of the learning environment and in programs for exchange of information among faculty or between faculty and students within the CSU will be considered instructional.

Non-instructional is defined as projects that do not fall within the curricular interests of any HSU academic department and for which no academic credit is granted to participants. Courseware offered through Extended Education which is not for a credit bearing course at HSU will be considered non-instructional. Support for non-instructional projects may be available through University Computing Services.

A *charge-back* is a fee assessed for the use of equipment, a labor charge for a service performed, or a charge for a product. A schedule of fees will be kept at the FCDC office.

Criteria for prioritizing proposed FCDC projects:

Non-instructional projects and services will have the lowest priority. New projects will not be given priority over the projects already underway. The FCDC will consult with the Faculty Advisory Committee to the Center for the Support of Instructional Technology (CSIT) to assist it in setting priorities for competing projects when requests for service exceed the FCDC's ability to meet deadlines with available resources. Availability of matching funds may be a consideration. From time to time, assuming the availability of funding, the Faculty Advisory Committee to CSIT may issue a request for proposals to faculty for projects to advance the use of technology-mediated instruction at HSU. The Faculty Advisory Committee also may issue calls for participation in responding to requests for proposals from outside funding sources.

Considerations for prioritizing projects include

- Would this project be used on a recurring basis, i.e. is this class offered every semester, every year?

- Does this project make use of new technology that is important to explore?
- Will the course be effective in supporting the department's integrated or programmatic-wide technology strategy as determined by the faculty member's Department Chair? At the department's request, the FCDC will assist departments to develop such strategies.
- Is there a similar commercially available product which could be purchased at a lesser cost?
- Has the project been designed with appropriate consideration for necessary copyright permissions?
- Is the equipment to use this project readily and widely available to the student on campus?
- Has the requestor received prior services from the FCDC?

Procedures:

Project requests are made on an "FCDC Project Request Form" (copy attached). It is not necessary to complete all of the items on the form prior to an initial meeting with FCDC staff — staff will assist requesters in completing the form. Usually within three to five working days after receiving the completed FCDC Project Request Form, the FCDC will arrange a consultation meeting with the requestor. The purpose of the consultation meeting is to determine the scope of the project. A number of factors can influence scope, the three most important being:

- Technology and pedagogy to be used. The FCDC, if desired, will provide suggestions to the requestor, but the requestor ultimately is responsible for selecting the technology and pedagogy to be used.

- Availability of requestor's course materials. It is best if all materials for the project can be submitted to the FCDC at the same time. If it is not practical to have all the materials available at the start of the project, the requestor should inform the FCDC of projected submission dates.

- Availability and sophistication of the requestor. Courseware development is an interactive process involving both the requestor and FCDC staff.

Normally within three working days after the consultation meeting, the FCDC will inform the requestor of the anticipated project completion date, based on the sophistication level of the project and the availability of FCDC staff and equipment, and an estimate of charges, if any. **It is very important to provide the FCDC as much lead time as possible to ensure that projects can be completed by the time the products are required**. It is not unusual for it to take a full semester to develop courseware for a class — trying to develop the courseware during the same semester it is to be used is problematic at best.

To keep the requestor current on the project's progress during the course of production, the FCDC periodically will prepare a progress report for the requestor. The FCDC will make its utmost efforts to meet the deadline and stay within any agreed upon budget. However, unforeseen events such as equipment breakdown, staff or requestor's illness, price changes for consumables, etc. may alter the deadline or the project cost. It is the obligation of the FCDC to inform the requestor of such incidents promptly and provide a new completion date and/or cost estimate. Delays in receiving course materials, decisions to change technologies in the middle of the project or the content of portions of the project already completed, or loss of availability of the requestor may alter not only the deadline but also the priority for the project

When completed, projects should be fully operational. The FCDC will use due diligence to test and debug the projects, ensure they are operational, and provide necessary operating instructions. However, the real test of courseware comes when it actually

is used in the classroom or in a distance learning environment. The FCDC will endeavor to fix bugs as high-priority items when the courseware is being used in a production environment.

The requestor's materials will be returned to the requestor as soon as they are no longer needed for project development.

On-going Support:

The FCDC's primary missions are the development of courseware and provision of faculty development support in the use of instructional technology. In general, the FCDC is not responsible for presentation, monitoring, or update of content after delivery of a project. Any additional alterations or updates requested after delivery of a project will be considered a new project unless these services were identified as part of the original scope of the project. It is a more effective utilization of resources if the FCDC develops the product and provides the requestor with the knowledge and tools to accomplish these on-going support functions on his/her own.

In the normal course of project development, deployment, and use, the FCDC ensures that adequate back-ups of all on-line materials are performed. Unless specifically requested, the FCDC might not maintain back-up copies of off-line materials, such as video tapes and CD-ROMs, after final product delivery. The requestor should ensure that an appropriate back-up strategy is identified for such materials.

Fair Use Guidelines:

Educational multimedia projects incorporating copyrighted works, even for in-class use, are subject to the Copyright Laws and accepted Fair Use practices. Because this is a dynamic area, the Library and FCDC will maintain a collection of the most current publications describing the current status of copyright and fair use practices. Individual permissions for all copyrighted works incorporated in a project must be sought before replicating or distributing the work. Individual permissions must be **secured** before using copyrighted works in any project for commercial reproduction and distribution.

Intellectual Property:

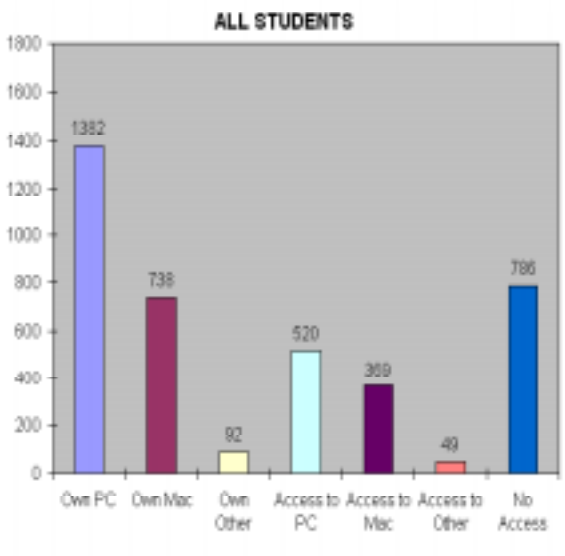
All products produced with the assistance of the FCDC are subject to the intellectual property policies of Humboldt State University.

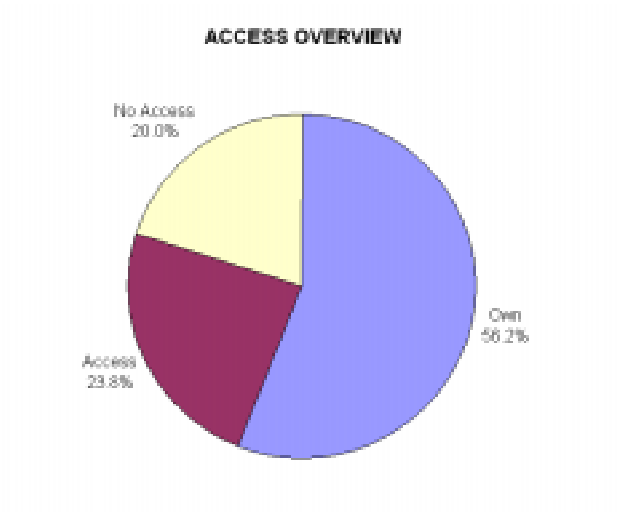
Review:

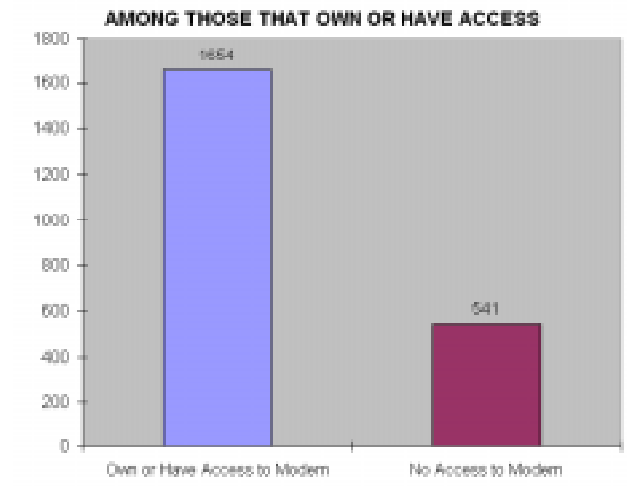
The Faculty Advisory Committee will review the operational procedures of the FCDC at least once every two years and recommend changes as appropriate.

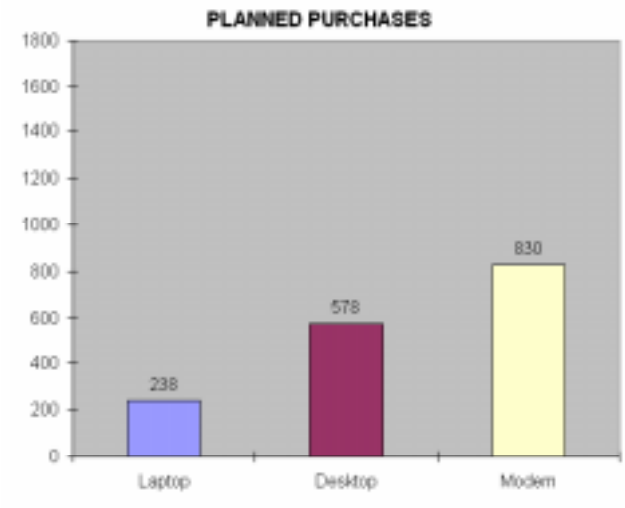
Attachment 5

STUDENT ASSURED ACCESS - Spring 1997 Survey



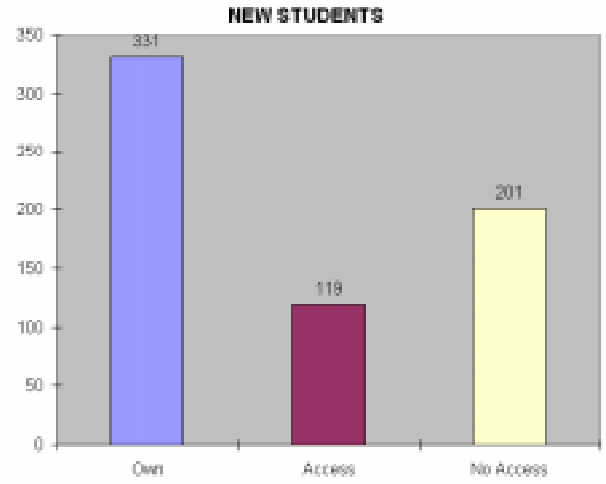


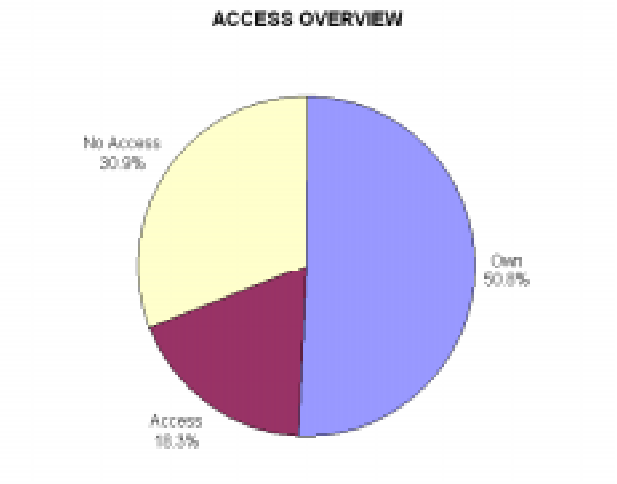


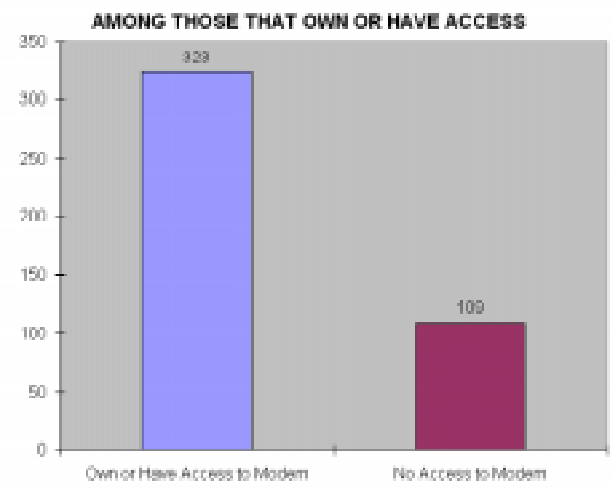


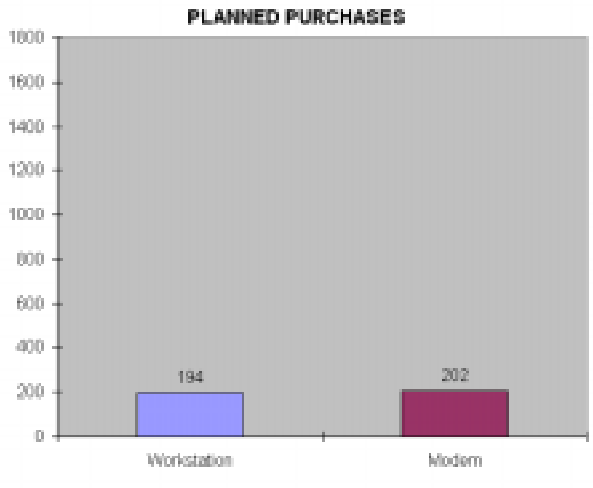
STUDENT ASSURED ACCESS

Summer 1997 Survey of New Students









ATTACHMENT 6

MODEL LAB LAYOUT