

Strategic Partnerships for Managing Labs

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ABSTRACT

At Iowa State University, the Office of Academic Information Technologies, the English Department, and the Department of Residence have developed a strategic alliance to plan and manage a collection of eleven computing facilities. These computer classrooms support hands-on writing instruction for a broad range of composition classes within the English curriculum.

What makes this partnership especially unique is the involvement of three departments, and in particular the Department of Residence. Six of the eleven classrooms are located in various residence halls; four are housed in Ross Hall – home of the Department of English, and one is housed in the Durham Center – home of Academic Information Technologies.

AIT worked with English and Residence to design the original labs, and we continue to provide annual support for specifications such as power requirements, network connectivity recommendations, server specifications, and software and hardware upgrades. In the current program, English and Residence combine to pay the operational costs associated with the labs. AIT manages the annual budget, as well as provides the expertise and labor for hardware and software upgrades and on-going maintenance.

English and Residence cooperate to provide hourly student monitors in the writing labs. A student monitor is always available during scheduled classes. This frees the instructor to concentrate on the content of the class while the monitor provides assistance by helping students with questions. These monitors are funded by the English Department during class hours, and the Residence Department funds monitors during evening hours in the six labs located in the residence halls.

In the event of a workstation failure, student monitors are trained to diagnose and resolve a wide range of problems. As a first line of software support, the lab monitors can contact AIT's Solution Center for assistance, and when the problem is determined to be hardware related, the monitors contact AIT – either directly or through the online Trouble facility – to schedule repair.

Keywords

RESnet, lab management, partnerships, distributed support, computing classrooms

1. HISTORY

"Ernest Hemingway won't give me my disk!"

"That was one of the strange problems occurring in the first writing lab at ISU, where each of the 25 computers bore a label with the name of a famous American writer. Students in English 105 could write on Richard Wright, type on Toni Morrison, or hammer away on Hemingway. The labels were one way of making the computers seem amiable and familiar to freshman students – 75% of whom had never used a computer before coming to Iowa State as freshmen in 1988." [1]

1.1 In The Beginning

The beginnings of the partnership date to 1986 when George Strawn, at that time the Computation Center Director, championed the idea of English Writing Labs. He participated on a small planning committee to investigate similar projects at other universities.

Following two years of research, the first English Writing Lab opened in Ross Hall, the building that houses the Department of English, in January 1989. The Office of Academic Information Technologies (AIT), known then as the Computation Center, provided technical assistance to design and install the lab, and Apple Computer, Inc. donated 25 Mac Plus computers to populate the lab.

1.2 The First Expansion

A second lab was opened in 1991. Also a Macintosh lab, the majority of the funding for this lab came from funds generated by the student computer fee assessment.

1.3 Adding to the List of Partners

In 1992, ISU President Martin Jishcke, committed university funds to equip several additional computer classrooms. There was room for two of these classrooms to be located in Ross Hall, but space available for labs in other campus buildings was at a premium. Just when much-needed funding for the program was finally announced, it looked as if the project might not continue.

Enter our "white knight".

LEAVE THIS TEXT BOX IN PLACE
AND BLANK

“We’re in this meeting of CAC, and Gary Schwartz says, ‘I’m gonna make you an offer you can’t refuse.’

He’s heard we need some space for the next two Writing Labs, and he offers study rooms in residence halls. If we pay for the equipment, the Residence Department will do the remodeling work and will foot the bill for operating expenses. That’s the best offer I’ve had since Benny the Book gave me two points on the ISU-Nebraska game in 1992.” [1]

The Department of Residence identified space in two of the residence halls for three new labs. Thus in 1993, the first English Writing Labs to be housed in residence halls were opened in

Knapp-Storms and Maple-Willow-Larch. Since these resident hall clusters are the farthest from central campus, the new computer classrooms were especially convenient for those residents.

1.4 Current Labs Facilities

Today there are 11 English Writing Labs (now called Computer Classrooms); five are housed in academic buildings (four in Ross Hall and one in Durham Hall) and six are located in residence halls (Friley, Helser, Knapp-Storms, Maple-Willow-Larch (2), and Roberts).

The Computer Classrooms include Mac-only, Wintel-only, and combined Mac/Wintel configurations as shown in Table 1:

Table 1. Computer Classroom Facilities

Location [2]	Open Hours	Computing Facilities	Primary Software
Durham 91	24 X 7	28 Pentium III, WinNT; laser printer	Adobe Acrobat Reader, Eudora, Minitab ¹ , Netscape, Office Pro 2000, PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Friley 2420	24 X 7; 11pm-8am Friley residents only	29 PowerMac G3, MacOS 8.6; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Helser 1510	24 X 7; 11pm-8am Helser residents only	28 Pentium III, Win95; laser printer	Adobe Acrobat Reader, Daedalus, Eudora, Minitab ¹ , Netscape, Office Pro 2000, PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Knapp-Storms C1103	24 X 7 ; 11pm-8am KS residents only	16 Pentium, Win95; 28 PowerMac G3, MacOS 8.6; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Minitab ¹ , Netscape, Office 98, Office Pro 2000, PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Maple-Willow Larch C3312	24 X 7; 11pm-8am MWL residents only	28 PowerMac G3, MacOS 8.6; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Maple-Willow- Larch C3114	24 X 7; 11pm-8am MWL residents only	27 Pentium, Win95; laser printer	Adobe Acrobat Reader, Daedalus, Eudora, Minitab ¹ , Netscape, Office Pro 2000, PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Welch-Roberts 2223	24 X 7; 11pm-8am WR residents only	27 PowerMac G3, MacOS 8.6; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Ross 15	Mon-Thu 8am-9pm; Fri 8am-5pm.; Sun 1-10 pm	27 PowerMac G4, MacOS 9; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Ross 37	Mon-Thu 8am-9pm; Fri 8am-5pm.; Sun 1-10 pm	27 PowerMac G4, MacOS 9; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Ross 115	Mon-Thu 8am-9pm; Fri 8am-5pm.; Sun 1-10 pm	25 Pentium III, Windows 2000; laser printer	Adobe Acrobat Reader, Eudora, Minitab ¹ , Netscape, Office Pro 2000, PageMaker, PageMill, PhotoShop, QuickTime, Real Audio
Ross 137	Mon-Thu 8am-9pm; Fri 8am-5pm.; Sun 1-10 pm	25 PowerMac G4, MacOS 9; laser printer	Adobe Acrobat Reader, Aspects, Daedalus, Eudora, Netscape, Office 98,PageMaker, PageMill, PhotoShop, QuickTime, Real Audio

¹Minitab is currently installed and will remain available throughout Fall Semester 2000. If our vendor supplies a non-beta version in time for installation, the labs with Minitab will also have the statistical package JMP 4.0 installed.

2. HOW THE LABS ARE USED [4]

The university's Computer Classrooms serve ISU students in three important ways:

- in support of the university-wide first-year composition requirement,
- in support of upper-level writing courses that fulfill communication requirements in various disciplines, and
- as public writing labs available to students outside scheduled class sessions.

Each semester the Computer Classrooms serve several thousand students in a wide range of English classes. Classes cover a broad spectrum of instruction from freshman composition classes, to upper division courses in professional communication, to graduate-level courses in literature. These labs provide hands-on composition experience during scheduled class periods. Outside the hours when labs are scheduled for classes, they provide ready access to students on a walk-in basis for word processing and other computing needs.

Students are able to take advantage of server-based file storage so files are always available regardless of which lab they visit. The servers are also accessible to students so they can access their files when working in their rooms in the residence halls. In addition to personal folders for students, the space is organized to provide collaborative space for group assignments. These same servers provide storage to faculty for course-related materials, and are organized to provide faculty with personal folders, as well as folders for assignments and administrative files.

3. LAB INSTALLATIONS AND SECURITY

New images are created each semester for each lab. As indicated by the software shown in Table 1, the labs are maintained with images that are identical in some cases, and very similar in all cases. Images are prepared by AIT staff based on requests from faculty. Currently ImageCast is used to produce and pull down the Windows system images and RevRdist is used to reproduce the master Macintosh image for the Macintosh lab workstations.

Early in the partnership, a liaison position was loosely defined. To avoid dozens of individual faculty addressing requests to the AIT staff, their collective requests are funneled through this liaison. Although software add and change request deadlines are "fuzzy", at best, we've managed a cordial relationship in spite of those times when we have to respond, "No, we can't have application X tested and installed by tomorrow morning."

Most additions to the software builds are negotiated while we are preparing our funding requests for the year. The English department includes any English-specific software and the AIT department uses input from Residence, the Computation Advisory Committee (CAC), and English to determine which general applications and utilities to include in the build. If these products are funded or site licensed, they are then included in the next build following successful testing.

3.1 Software Security

The Macintosh workstations have very little software security installed other than the drive name lock extension to prevent users from renaming the boot hard drive. We rely heavily on RevRdist,

a startup application, to refresh any files that may have been deleted intentionally or unintentionally. If RevRdist has been removed, the lab monitor can replace it from a CD or floppy, or in worst-case scenarios, "unbless" the current system folder then reboot the workstation. This process forces the Macintosh to boot from a minimal system software set on a hidden partition that then connects to the server and runs RevRdist to refresh the primary partition. As a last resort, we use bootable CD's that perform a similar process.

So far this method of maintaining the workstation software has been effective, although we have threatened to purchase FoolProof for Macintosh to enforce system security. We are currently working with the built-in security of MacOS 9 to help maintain system integrity.

The Windows 95 workstations are locked down with FoolProof for Windows. We tried various methods to refresh the Windows system and application files with PCRdist, a product similar to RevRdist, but the refresh times were unacceptable and the product, as tested, had numerous operational difficulties. We started by locking the systems with FoolProof for Windows using the minimal settings to allow user flexibility. Gradually we tightened the security settings to maintain acceptable system integrity. We increased security until we were at the maximum settings. While we prefer not to implement restrictions at this level, the systems were regularly getting hacked to the point they were unusable. We will be moving to Windows 2000 in the future and utilizing policies to maintain system integrity.

Because the Windows systems have such tight file and desktop security through FoolProof, we only refresh the workstations on a scheduled periodic basis, or when an individual system problem warrants a refresh. Since no user files are permanently stored on the workstation, we use ImageCast in Standalone mode to refresh individual stations or Multicast mode when there is a new or updated image.

3.2 Hardware Security

The department who "hosts" the site, e.g., English, Residence or AIT, determines the type of hardware security used at that site. In the Ross Hall and Durham labs, we use passive cable and lock restraints to keep the system units closed and the mice and keyboards secure. In addition, all labs in Durham have security cameras that are tied to a time-lapse videotape system for visual security.

The Residence Department facilities have an active security system using optical fibers in a zone arrangement tied to a time-lapse video system. These optical fibers run through various parts of a workstation: the CPU unit security loop, the captive monitor video cable, and keyboard and mouse cable loops so that the fiber would have to be cut or disconnected to free any of these devices. If one of the cables is disrupted, the in-room alarm is triggered, the video surveillance system goes into real-time mode using the camera covering that fiber zone, and the alarm is relayed to the Hall Desk and to the Department of Public Safety, i.e., Campus Security. This is quite an extensive system and we have experienced far too many false alarms, as well as dealing with high maintenance on the optical fibers.

The computer classrooms with 24x7 access have the built-in security of continuous access. In over 11 years of 24x7, unstaffed computer labs in the Durham Center, we've had only one mouse stolen and that happened very soon after moving to the 24x7 access. As a result of viewing the overnight videotape of the facility, we were able to identify the person who removed the mouse. As a result of highly publicizing this event, we've never had another instance of theft or vandalism. Our video system is tied into a monitoring system that is viewable by operations staff in our computer room.

On a humorous note, the operators, as part of their duties, regularly observe activities in the various Durham facilities while watching the video monitors. They have observed actions on the video that boggle the mind, although not actions that deal with damage to the lab.

The use of passive systems and security cameras has provided very adequate security in our labs, partially because the security measures are so obvious. We also carry insurance that is designed to cover major losses, whether from vandalism/theft, fire, or flood.

The authors would prefer to move to similar passive systems in the residence hall labs, given issues with the vendor's poor customer service on the optical fiber system and the high cost of the fiber system. The fiber optic system also places a heavy burden on support staff that provide hardware assistance when it requires removing a unit from the loop. If there is interest in this topic at the presentation, the authors will offer "editorial comments" regarding this system.

4. DAILY OPERATIONS

Students, primarily undergraduates, are hired by the English Department to monitor the labs during hours when the labs are scheduled for classes. During evening hours, the Department of Residence employs students for the six labs located in residence halls and the English Department employs the students for the four labs located in Ross Hall. The Durham facility has a lab monitor available in a nearby room to provide hardware and software assistance and has surveillance cameras to provide physical facilities security.

Having monitors available during scheduled class hours allows faculty to concentrate on their prepared class presentation without dealing with individual questions regarding use of the software or facilities. Students seem more willing to ask the monitors for assistance than to interrupt the instructor. This arrangement has been extremely popular with faculty and students alike.

4.1 Monitor Duties

Monitors are responsible for daily operations of the lab. This includes things such as minor cleaning (picking up papers, cleaning keyboards, mice, desk surfaces and displays, loading paper and toner in printers, rebuilding images, etc.)

The monitors are also the front line support for all questions dealing with hardware, software, and environmental issues. They handle questions concerning operating systems, applications, assignments, and networking issues. They are also familiar with other service providers on campus and can direct students to other resources as necessary, such as AIT's Solution Center and AIT's 24-hour Help Desk.

4.2 Training and Supporting Student Monitors

The student monitors receive training from the AIT staff regarding images, troubleshooting common problems, etc. Beyond that training, the lab monitors have a wide range of resources available. These resources limit the need for monitors to rely on either their employing department or the AIT staff for first-attempt, immediate support.

The lab monitors rely on the following resources:

Each fall we hold a training session where the new lab monitors can meet the fulltime support staff and learn firsthand about their responsibilities and available resources in a face-to-face, hands-on environment.

Lab monitors maintain log files throughout their shift. These logs list problems that occurred during the shift and provide a reliable method for passing along information related to software, hardware and network issues and solutions.

A peer mail list is maintained for discussing reoccurring problems and common solutions. It is also used for employment and facility-related issues, e.g., help wanted, finding substitutes, timecard reminders, notification of supplies needed, reporting a broken chair, etc. There is a designated "Super Monitor" at each site who usually has had many years of experience and who can answer most of the questions asked by lab monitors. In addition, all three departments regularly monitor and contribute to this list.

An AITLab mail list is used to consult with the workstation, network, and system administrators and to report software, printing, and networking issues. This resource addresses both immediate problems and long-term suggestions.

AIT maintains a "Trouble" web page that is used to report problems within the labs. Using simple pull-down items, as well as text boxes, this is an easy-to-use, reliable method for reporting and checking the status of hardware problems.

4.3 Telephone Support in Labs

All of the Computer Classrooms have a telephone installed in the lab, with the exception of the lab located in the Durham Center. The Durham lab is located in close proximity to 24x7 operational AIT support staff.

In the labs located in Ross, the telephones have unrestricted on-campus access. These labs are never open except when a monitor is on duty, and the monitors are responsible for phone usage. Numbers are posted for both hardware and software assistance, as well as for campus security. Besides obvious lab issues, the monitors can report environmental problems, such as heating and cooling, broken chairs, or general cleaning issues.

In the residence hall labs, the telephone is restricted to a "phone attendant". This is a restricted set of numbers and is menu-based. The caller can reach campus security, residence hall maintenance, as well as call for assistance with software and/or hardware problems.

5. FINANCING FACILITIES AND STAFF

The goal for the Computer Classrooms is to have a three-year life cycle for hardware, although realistically we have had to stretch to four years – and sometimes beyond.

Efforts to bring financing for the labs into an annual budget have been unsuccessful to-date, but the three departments continue to work toward that goal.

As incredible as it sounds, lab hardware and software upgrades are financed almost entirely through a yearly proposal process. The three sources that contribute to this project are CAC, LASCAC, and Presidential fiscal year-end funds. The Computation Advisory Committee (CAC) is a body that reviews proposals yearly and distributes central pool funds. The CAC proposal process is an annual competition for student computer fees. LASCAC, the Liberal Arts and Sciences Computation Advisory Committee, allocates funds within the LAS college. The Presidential fiscal year-end funds are funds that the President's office awards to departments that submit requests for projects that are not funded through the regular University budget. This is also a proposal process much like CAC.

5.1 President Funds Additional Labs

Following the immediate and obvious success of the initial four Ross Hall labs, President Jischke funded the installation of the last seven computer classrooms in installments of one-to-three labs per year from 1993 through 1995. The funding covered facilities remodeling expenses including electrical, HVAC, desks, chairs, video projection equipment, the initial network infrastructure, hardware, software, security systems, and printer purchases. AIT and the hosting departments jointly managed these budgets. AIT was responsible for the network, server, workstation, operating system, and application specification and installation.

5.2 Year End Funds (YEF)

Historically, nearly two-thirds or approximately \$250,000 to \$300,000 of the annual upgrade funds for the writing labs come from Presidential Fiscal Year-End Funds (YEF). These funds are made available through a proposal process in which departments submit requests through the Office of the Provost to compete for funds that were not expended through the normal university budget during the year. The writing labs have been fortunate to receive at least our base level request every year we have been in this process. We are working on establishing this project as a regular budget item in order to secure predictable funding and to avoid spending time producing proposals every spring.

The current request process starts when the Computer Classrooms Committee meets in November or December to discuss which site(s) need hardware and software upgrades. Once a rough spreadsheet is created and pared to a reasonable level, a joint proposal is created by AIT and the English Department through a volley of emails refining text and spreadsheets. This is then submitted through the Provost's office for initial prioritization. That office then sends the proposal to the President's office. Awards are usually announced in late April. We count on this funding as the "seed" or matching funds required for the CAC proposal process.

5.3 Student Computer Fees

The Computation Advisory Committee was established in 1992 to collect and distribute student computer fees to departments and colleges across the University. This is done through two pools of funds: the Central Pool and the Departmental Allocations Pool.

5.3.1 CAC – Central Pool

As generated by the current fee schedule and enrollment, the Central Pool is approximately \$600,000 annually; any department can request funds from this pool through a proposal process. These requests must meet certain guidelines. Proposals are more likely to be successful if they demonstrate matching funds, provide access to a large portion of the ISU student community, and are of a reasonable size. CAC issues a call for proposals early during the Spring semester, meets in late April (many times) to discuss and prioritize the requests, and then announces awards in early May.

Based on past experience, the Computer Classrooms usually receive enough funding, approximately \$65,000 to \$90,000 (up to a maximum of \$134,000 in 1997), to upgrade hardware and software in one lab. The fund restrictions require that the money be used only for capital expenses, therefore requiring operational expenses to come from YEF or LASCAC.

5.3.2 LASCAC – Departmental Allocations Pool

The Liberal Arts and Sciences CAC funds (LASCAC) are available to departments within the College of Liberal Arts and Sciences in a proposal process similar the Central Pool. These funds have fewer restrictions. The funds are available only through the English department (in terms of applying to the Computer Classrooms project) and traditionally have been used only for the Ross Hall labs. These allocations are usually smaller, around \$35,000 to \$65,000. These funds can be applied to operational expenses and have been used for in-class lab monitor wages, printing supplies, and software upgrade subscriptions in addition to capital purchases. The proposals are collected and awarded around the same time the Central Pool funds are awarded.

6. POLICIES AND PROCEDURES

Currently the labs are run on a partnership that exists "on a handshake." While many discussions have occurred over the years that have determined "who does what and when", we have no formal Service Level Agreement (SLA) in place. As the labs continue to expand and become more sophisticated, and as instructors become more expert and interested in being creative with instructional tasks, it is clear that SLAs will play a part in our future partnership.

7. ADDITIONAL PARTNERS

Although mentioned specifically in other sections of the paper, it is important to note two additional partners.

The Instructional Technology Center (ITC) "provides centralized leadership and operational and creative support for the effective use of instructional technologies at Iowa State University. ITC's ultimate goal is to facilitate excellence in the teaching, research, and service functions of the university." [5] They work closely with faculty in all academic departments and have expertise in course design, as well as expertise in using web-based software to deliver instructional content, e.g. WebCT, and expertise in using various media for delivering visual and audio content. For the Computer Classrooms, ITC has provided technical assistance with video projection and assistive technologies.

The mission of ISU's Facilities Planning and Management (FP&M) is "to provide a campus environment that supports campus departments in achieving their objectives for teaching,

research, and outreach.” [4] When facilities issues are involved, such as lighting, HVAC, power requirements, etc., FP&M is always involved in the project planning.

8. NEW IN 2000

During Spring Semester 2000, we began experimenting with a software solution that allowed students to direct output to a laser printer and charge the output to their university bill. With local modifications wrapped around a utility that routes print over IP to networked printers (PCLPR), the experiment was a success. First introduced in a residence hall lab (a non-Computer Classroom), it was moved to a large lab in the Durham Center during Summer 2000. For Fall Semester 2000, we anticipate introducing PCLPR in one or more of the Computer Classrooms.

Students are given a printing quota each semester, but often they exceed the quota before the end of the semester. This mechanism gives them an easy, automated way to pay for laser output once their quota is exceeded.

To accommodate laser printers in labs that are monitored by cameras instead of staff, we are experimenting with a new type of printer security. [7] With security to protect the paper and toner, and PCLPR in place, we believe we can provide laser printing – even in unstaffed labs – without the financial support problems that often plague public laser printer facilities.

9. WHY IT WORKS

“A lot of people who come up to me on the street say, ‘Bob, you’re a quiet, soft-spoken kind of guy. How did someone as shy and retiring as you manage to sell the Iowa State administration on the concept of the Writing Labs? Why does this thing work so well at Iowa State, when similar projects at other universities got nothing but apathy from their administrators and resistance from their computer people?’

I just put on my Mortimer Snerd grin and say, ‘Gee, duh, I dunno.’

But from what I’ve already said, you should have a pretty good idea of why it works: a lot of people with a lot of different areas of expertise make it work.

I think it started with the service attitude of the people at the Computation Center. George Strawn and his cohorts had the screwy idea that the Comp Center should actually help students and teachers use computers in their teaching, learning, and research ...the Comp Center folk actually asked what we’d like them to do for us, and I think that was the real key..” [1]

Bob pinpointed the most significant reason why the partnership has been a success: a lot of people with a lot of different areas of expertise make it work.

As the cliché goes, everyone “checks their egos at the door” when we participate in planning meetings and cooperate on implementation and support.

Throughout the history of the partnership, each department has contributed input – ideas and labor – in those areas where they have the expertise.

9.1 Layout of the labs

Each new lab is a challenge as the space allocated is often not ideal for a teaching lab. Historically the English Department provides expertise in the layout as it relates to instruction, and both AIT and Residence provide expertise as it relates to workable layouts for desk/chair placements, aisle placements, and ADA requirements.

During Spring Semester 2000, the Durham classroom was remodeled to provide a first-of-its-kind facility for group collaboration space within a lab. The authors will cover details regarding this lab in their fall presentation.

9.2 Networking Requirements

When determining networking requirements for each lab, AIT’s Lab Management and MPC-Service areas work on schematics and cooperate with the Office of Telecommunications on the specifications and installation of equipment. In most labs, the hubs and/or switches are located in secure areas within the lab itself instead of being located in a wiring closet elsewhere in the building.

9.3 Electrical and Environmental Requirements

Facilities, Planning and Management also partners in the design and installation of every lab. They provide the expertise on campus regarding electrical load and HVAC (heating, ventilation, and air-conditioning) requirements.

9.4 Software and Hardware Requirements

The content of the image used in each lab is determined by the English Department. Occasionally, however, budget plays a determining factor in when software can be upgraded. AIT creates lab images and provides the expertise to build the images and trains the staff to rebuild individual desktops when problems arise. It is AIT who provides the expertise in selecting the software used to manage the labs.

English and AIT make hardware decisions jointly. English determines whether a lab is to contain Macintosh or Wintel equipment, although in the residence halls that have two labs, Residence has requested that one each – Mac and Wintel – be maintained. Once that decision is made, AIT collaborates to recommend hardware that will perform well given the software mix in the lab.

9.5 Audio-Visual Requirements

Yet another “partner” enters the picture when A/V equipment is involved. At ISU, the Instructional Technology Center is responsible for analyzing A/V needs, writing specifications, as well as installing and providing on-going end-user support for media equipment. All the Computer Classrooms have A/V equipment of some kind. In some labs, large TV-style monitors are mounted near the ceiling and are used for the projection service. In labs where the room dimensions and furniture arrangement allow, a projector is ceiling mounted and used with a large power-assisted screen.

10. ACKNOWLEDGMENTS

The authors wish to acknowledge our partners in the English Department and in the Department of Residence. All three departments are proud of the success and history of cooperation

that began in 1986 and continues to evolve in innovative and surprising ways.

If only we (the authors) had simply plagiarized a document written by an English professor – someone who might be called the “father” of this program, this paper could have been entertaining as well as informative. A delightful writer, the project history was gleaned from a narrative [1] written by Bob Boston, now retired but fondly remembered. A heartfelt thank you also goes to Jim Noland, Adjunct Instructor and the current liaison with AIT regarding the Computer Classrooms program. He provided generous help and supplemental material from a variety of sources.

In closing, the authors wish to acknowledge the truly outstanding support provided by the Office of Academic Information Technologies to the authors in pursuit of professional development. AIT recognizes and values the importance of attending conferences like ACM/SIGUCCS. We applaud their support and vow to bring new ideas and enthusiasm back to share with and inspire our colleagues.

During the “Bob Boston days”, as we left planning meetings, Bob would often make the parting remark, “Do good things.” It wasn’t a standing remark, but rather a special encouragement to those who had been tasked to carry forth and implement the plans coming from that day’s meeting.

Well, Bob, we did. We still are. And we will continue to do so.

11. REFERENCES

- [1] Boston, Bob, *Overview of Iowa State Writing Labs*, date unknown.
- [2] *Campus Maps*, [web page], <http://www.fpm.iastate.edu/maps/>
- [3] *Department of English Computer Resources*, [web page], <http://www.engl.iastate.edu/main/resources/wl.html>
- [4] *Facilities, Planning & Management*, [web page], <http://www.fpm.iastate.edu/>
- [5] *Instruction Technology Center*, [web page], <http://www.itc.iastate.edu/>
- [6] Roberts, Dave, *The Writing Labs Project*, CAC Proposal, February 2000.
- [7] Top Tec, [web page], <http://www.top-tec.co.uk/Printer%20Security.htm>