

Wireless Laptop-Lending Program at The University of Akron

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Abstract

The wireless laptop-lending program at the main campus library of the University of Akron (Ohio) maintains 150 machines to circulate for in-house use to students and faculty. This program (the largest of its kind) has allowed an old building to dramatically and inexpensively increase its number of public workstations; required librarians and information Services professionals to work closely and cohesively; rejuvenated the library service program with first-time users; and enhanced the teaching and learning process by offering standard, on demand software on reliable, available computers.

Background

The University of Akron is the third largest publicly-assisted university in Ohio, with more than 24,000 students enrolled in over 300 undergraduate, master's, doctoral, and law degree programs. University Libraries is a department within the VP/CIO Division, under direction of the Chief Information Officer and Vice President for Information and Instructional Technologies, Libraries, and Institutional Planning. University Libraries is composed of Bierce Library and The Science and Technology Library. Bierce Library is the main library on campus and serves the needs of both faculty and students. Bierce houses over 1.5 million volumes and has nearly 300,000 circulation transactions annually; there are only 37 hard-wired workstations in Bierce, and in 2000 there were often lines of students waiting to use these workstations. The library desperately needed additional workstations, but our telecommunications and power connections were maxed out. Estimates to re-wire the building exceeded \$800,000; the problem seemed insurmountable.

Although classroom instructors increasingly require that students have access to computers and appropriate software programs to complete their assignments, there is currently no computing equipment required for admission; therefore, The University of Akron has traditionally made every effort to ensure that students have access to the computing capabilities that they need to support their learning and research needs. In December of 2000 the university had eight general purpose, open computer labs—one of which was in Bierce Library. In all of these labs the lines were long and the equipment was outdated and often out of order. The only support in each lab was provided by student help which was sometimes reliable and sometimes not. The Help Desk staff from the Computing Center provided expert software help; PC Repair Services was at the other end of the 162-acre campus. The computing situation was not one to boast about.

Planning and Partnering

In the fall of 2000, the university community crafted an ambitious and innovative strategic vision to help us plan for the future. This vision is entitled *Charting the Course* (<http://www.uakron.edu/home/chart/letter.html>). There are only two priorities listed in this

strategic vision: Student Success and Information Technology Leadership. The University believes that one of the things that will ensure our graduates' success in today's economy is technological competence. One of the strategies employed to realize this commitment to student success was the project called Technology without Boundaries (<http://www.uakron.edu/laptop/>)-- The University of Akron's campus-wide wireless laptop initiative.

In early December 2000, a campus-wide task force was formed to plan and implement the first phase of the campus-wide wireless laptop initiative. The task force included representatives from the various groups targeted to receive laptops as well as key members from several departments within the VP/CIO Division, including staff from PC Repair, the Help Desk and the Library Systems Office. Each member of the task force was assigned specific duties and tasks that were to be completed before January 16, 2001, the target date for the initial rollout. Tasks included: ordering equipment, coordinating set-up and distribution of the laptops, creating the standard laptop image, installing the wireless network, identifying and resolving security and other network issues, preparing manuals and user guides, and publicizing the campus-wide initiative. Needless to say, we had to work closely and quickly to ensure a successful program. There was no time for territorial disputes or egos.

The campus Help Desk was moved into the ground floor of Bierce Library so that students who needed assistance with logins and passwords for the laptops would not need to leave the building; a satellite of PC Repair was also moved into Bierce so that triage and minor repairs on the laptops would be fast and easy. The laptop distribution to pilot participants was conducted from the library.

This forced collaboration resulted in one of the greatest (and unanticipated) benefits from the Technology without Boundaries project. New and productive relationships were forged between key staff in IS and the library. The satisfaction that resulted from the great success of the laptop initiative has created a willingness for IS and library staff work together on other creative and exciting projects that support student learning. These projects include an online information literacy tutorial, a library instructional classroom that utilizes thin client technology, and a public print management program that has been adopted campus wide.

Policies and Procedures

After conducting a brief review of programs at other academic libraries, we determined that most of these were of a much smaller scale than was planned for Bierce Library (see Appendix A). Typically, libraries had only 8 – 20 laptops to lend. Lacking a model for a large scale lending operation, and given the short time frame in which we were expected to implement the library's laptop program, our approach to planning was to rely on our common sense and experience to set up the initial program and to pledge to be flexible and responsive as we learned more about students' need by listening to them.

The first task undertaken was to draft basic circulation policies. We decided that:

- Laptops circulate only to UA students, faculty and staff.
- The machines do not leave the library building.

- Laptops circulate for a two-hour time period (based on the anticipated battery life), and may be renewed once for an additional two hours.
- Fines accumulate at \$10.00 per hour, with a maximum fine of \$100.00. There is a 15-minute grace period.
- Users would be charged \$2,000 for stolen or unreturned machines.

Our experience served us well, as evidenced by the fact that these policies (with the addition of a four-hour loan for some machines) are still in effect and have served their purpose well.

The procedures have gone through only a few changes since they were adopted in January 2001. A valid ZipCard (The University of Akron ID card) and a second photo ID are required to check out a laptop. The user's ZipCard is held behind the laptop circulation desk until the laptop is returned. Each time a laptop is checked out, the user must complete a Laptop Computer Loan Agreement (<http://www.uakron.edu/laptop/LoanAgree.pdf>). This is, by far, the most time-consuming portion of the checkout procedure. Users acknowledge the circulation policies, agree to allow library staff to hold their ZipCard for the duration of the loan period, and agree to pay overdue fines and other charges as these occur. Lastly, users state that they have witnessed the physical inspection of the laptop and verify they have read, understand, and agree to abide by the Bierce Library Laptop Circulation Use and Liability Policy (<http://www.uakron.edu/laptop/UsePolicy.pdf>). By signing the agreement, the user assumes full responsibility for the laptop and/or any accessories damaged or lost. Once the form is completed, the circulation attendant handling the checkout transaction reviews it. The laptop is checked out on our INNOPAC library system, and the agreement and the patron's ID are placed in the corresponding slot in the laptop cart.

Phase One: Spring/Summer 2001

On January 16, 2001, Bierce Library began circulating 60 wireless laptops to UA faculty, staff, and students from the main Circulation Desk. The open lab in Bierce was closed, so students would be "encouraged" to try the new technology. Since we were testing our new policies and still working out procedural details during the initial phase of implementation, we decided to minimize confusion by circulating laptops equipped only with a floppy drive. We wanted to keep things simple at first, but we were prepared to add DVD/CD-ROM drives, mice, and Zip drives to the equipment mix if a user survey showed that the students needed or wanted a selection of peripherals.

Although the machines distributed to Bierce were configured with the standard campus-wide desktop image, a customized library image was created for the library laptops. Ghost 7.0 was used to create and distribute the original and subsequent desktop images. The original desktop image was limited in terms of functionality. It did not provide shortcuts to high usage applications such as Word 2000, Excel, nor did it contain a short cut to the University Libraries web site. Additionally, the library wanted to provide access to Netscape Communicator, which was not included on the standard desktop image. These changes and several others were included on the new image, which then had to be reloaded on each of the 60 laptops. After loading the new image, Windows 2000 was configured, the admin password was set, the laptop was added to the domain, and default printers were set on each of the 60 laptops. On later

versions of the library image, joining the machine to the domain, setting the admin password, and setting default printers were accomplished via the desktop image.

The high volume of checkouts, together with the time-consuming checkout process, convinced us that our decision to initially keep things simple was a sound one. The traffic was higher than we anticipated with an average of 2,045 monthly transaction during Phase One, and helping each student become familiar with the new machines and software took a lot of time in the beginning. Other circulation services were suffering, so the service was soon moved from the Circulation Desk to its own service desk on the ground floor of the library.

At the end of the Spring 2001 semester, we put a user survey on the laptops. The response was overwhelmingly positive (see Appendix B). But there were students who resisted the laptop technology in favor of the old, hard-wired labs.

Phase Two: Fall 2001/Winter 2002

The new academic year that started in August 2001 brought several significant changes to the laptop-lending program. Over the summer, UA Information Services had closed five more general-purpose computing labs, leaving only two hard-wired labs on campus. To compensate for the lab closings, 60 additional laptops were brought to Bierce Library. Students gained access to machines that were newer, better, and faster than any of the machines located in the former general purpose computing labs, and a new class of entering freshmen had no reservations about using the laptop technology.

By the fall of 2001, the library was successfully circulating 120 wireless laptops an average of over 9,900 times a month from the ground floor service desk. Of the 120 laptops, we began circulating 24 of the laptops with a four-hour loan period. In order to accommodate the four-hour loan period, the floppy drive was removed and an IBM Li-Ion battery was placed in the Ultra bay slot. The other 96 laptops circulate for a 2-hour loan period.

Several software applications previously available in the Bierce computing lab and still available in other labs were not included on the initial library desktop image. After resolving licensing issues, SPSS, SAS, and Visual Studio (including Visual Basic and C++) were loaded on the laptop image, and the image was reloaded on each of the library laptops.

As a two-person shop, the Library Systems department is kept busy addressing the technical needs of approximately 65 members of library staff in three separate locations. This is in addition to supporting over 50 library research workstations in two libraries and other library resources and systems. Library staff was used to a same-day and, at times, an instantaneous response to technical support and help requests. Adding the first 60 laptops to the support mix caused a slowdown in response time for library staff needing technical assistance or support. Over time, systems staff began spending more and more time dealing with laptop related issues. With the addition of the second set of 60 laptops, support, maintenance, and re-imaging of the 120 laptops by Library Systems was not feasible. In Fall 2001, the Technology and Learning Support Center agreed to take over all aspects of laptop technical support. Additionally, Support Center

technical staff, in consultation with Library Systems staff, now handles laptop image creation, maintenance, and distribution.

Phase Three: March 2002-Present

In March 2002, we added 30 more laptops to our program. With 150 laptops housed in five carts, we had maximized the area housing the laptop lending service. The “temporary” location where the service had been located for over a year was not large enough, secure enough or laid out well enough to provide the best service. So, we redesigned a large, enclosed room on the third floor of the library to house that service. The new area is large enough to house a PC Services satellite operation, all five laptop carts with room to spare, and a service counter long enough to support four circulation workstations.

During the summer of 2002, one of the remaining two hard-wired computing labs was closed. In September, October and November of 2002, the Laptop Lending Service averaged 12,200 monthly transactions. 300 hours of student assistant coverage is needed to meet the high demand.

Originally, we planned to use PCR-Dist to regularly refresh the laptop image after each use and/or for minor updates to the present image. This would have been handled with a special network login that would call a script to run PCR-Dist. The high volume of laptop checkout and turnover coupled with the often busy and sometimes-hectic environment at the laptop circulation desk quickly rendered this plan impractical. We realized that any type of manual refresh procedure, regardless of whether it was run after each use, once a day, or once a week, would not work. We recognized that an automated refresh procedure must be developed. At present, Technology and Learning Support Center technical staff are working on an automated refresh procedure that will automatically run PCR-Dist over the wireless network at preset times on specified days of the week. The technical specifications of the wireless laptop program are described in Appendix C.

Benefits

Many benefits have been realized since the inception of the wireless laptop-lending program at Bierce Library—benefits to the institution, to the library, and, mostly importantly, benefits to student learning.

On the practical level, institutional benefits include a huge savings in wiring costs; a reduction in space devoted to computing labs, resulting in an increase of available office and classroom space; and the standardization of hardware and software which, in turn, makes providing technical support better, faster and easier. The assurance that students will have easy, reliable access to computing tools has allowed the faculty to become more innovative and more creative with their assignments. Finally, the program ties together The University of Akron’s top priorities of Student Success and Technology Leadership in an exciting, positive, and tangible project that serves as evidence of its commitment to realize the vision outlined in Charting the Course.

The laptop program has revitalized Bierce Library by bringing in more foot traffic than the library has seen in years. Instead of continuing the decline in patron count and circulation numbers that it had experienced of the past several years, those numbers are now on the rise. Because laptop users need large, flat spaces on which to work, the library has gotten rid of hundreds of its old study carrels and replaced them with new tables that comfortably accommodate a laptop user and facilitate group study and discussion. Finding a secure, convenient location to house the laptop operation inspired a space utilization study of the whole library, and during the summer of 2002, many of the major service points were moved into better locations. Finally, students told librarians and dining services personnel that what they really wanted was a Cyber-Café in the library. So we opened one. It is currently the most popular coffee shop on campus. Just seeing every table and most of the chairs filled with students—many of who have a laptop in front of them, is rewarding and fulfilling.

Benefits to students, faculty, and staff include: access to more, high-end computing equipment than ever before; mobile connectivity to the network; and increased service and support. Response to the laptop-lending program has been overwhelmingly positive. Our laptop users have the freedom to take a laptop and connect to the campus network from anywhere within the library, from the seating area near the laptop circulation desk to the furthest and most remote corners of the library. In response to demand from students for additional laptop lending stations throughout campus, a new laptop lending service will soon be available in The University of Akron's brand new Student Union and there are plans to open another station in Fall 2003 in the newly expanded Science and Technology Library.

Appendix A

Selected Readings/Web Sites

Block, Karla J. (2001). Laptops for Loan: the Experience of a Multi-Library Project. Journal of Interlibrary Loan, Document Delivery & Information Supply. 12 (1), p1-12.

DiRenzo, Susan (2002). A Wireless Laptop-Lending Program: The University of Akron Experience. Technical Services Quarterly, 20 (2) p 1-12.

Ellison-Nixon, Kathy. (2001). Policies and Procedures for Laptop Computers. Book Report 19 (5), p33.

Myers, Penelope. (2001). Laptop Rental Program, Temple University Libraries. Journal of Interlibrary Loan, Document Delivery & Information Supply. 2 (1), p35-40.

Oddy, Elizabeth Carley. (2002). Laptops for Loan. Library & Information Update. 1 (4), p54-55.

Rogerson, Holly D. (2002). Lending Laptops at the Vineland Public Library. Public Libraries. 41 (6), p332-336.

Vaughan, Jason B., Burnes, Brett (2002). Bringing Them in and Checking Them out: Laptop Use in the Modern Academic Library, Information Technology and Libraries. 21 (2) p52-62.

Bowling Green State University

<http://www.bgsu.edu/colleges/library/ogg/laptops.html>

http://www.bgsu.edu/colleges/library/circ/policy_for_circulating_wireless_.htm

Case Western Reserve Library

<http://www.cwru.edu/UL/Service/ibookcircpol.htm>

College of Staten Island Library

<http://www.library.csi.cuny.edu/laptops.htm>

Colorado State University

<http://lib.colostate.edu/access/laptops.html>

Cornell University

<http://www.library.cornell.edu/okuaccess/laptops.html>

Drexel University

<http://www.library.drexel.edu/services/laptops.html#Policies>

The University of Akron

<http://www3.uakron.edu/ul/depts/laptops/>

University of North Carolina at Chapel Hill

<http://www.lib.unc.edu/circ/laptops.html>

The University of Oklahoma Health Science Center

<http://library.ouhsc.edu/>

Worcester Polytechnic Institute

<http://www.wpi.edu/Academics/Library/Info/laptops.html>

**Appendix B
User Satisfaction**

In Spring 2001, we created a user satisfaction and feedback survey. As a direct result from the feedback received from the survey, additional software was installed on the laptops, access to optional hardware devices such as Zip drives, CD-ROM drives, and loan lengths on some laptops were extended.

General Feedback

Positive	Negative
<ul style="list-style-type: none"> • Convenience • Privacy • Comfort • Mobility • Ease of Use 	<ul style="list-style-type: none"> • Printing issues • Connectivity Limited To the Building • Loan Length • Lack of Shared Server Space • CD-ROM Drives, Zip Drives, Mice

Sample Questions and Results

How comfortable was the laptop to use?	Did the laptop have all of the software that you needed?	Please rate the checkout process
62% - comfortable 29% - not bad 07% - difficult to use 02% - uncomfortable	75% - yes 25% - no	43% - Efficient and quick 45% - As expected 12% - Too long

Appendix C Technical Specifications

Wireless Network Overview

The University of Akron Wireless Network

- The UA wireless local-area network (WLAN) provides coverage to 75 buildings, commons, and other open space located on the 162-acre main campus.
- Over 750 Cisco Aironet 340 Series, 350 Series, and 1200 Series access points are installed across campus.
- 10 Cisco Aironet 340, 500, and 4800 Series Wireless Bridges provide network connectivity to remote university buildings, including the Akron Rubber Bowl (football stadium) located 7 miles from the main campus.

Bierce Library

- 33 Cisco Aironet 340 Series Access points installed on all four floors of the library provide complete network coverage for a total of 183,456 net assignable square feet.
- Access points are set-up to overlap wireless coverage and provide uninterrupted service within the library.
- Cisco Aironet AIR-PCM340 wireless adapters are installed on the circulating laptops.

Hardware Specifications

Circulating Laptops:

- Pentium III 700
- IBM ThinkPad model T20
- 128 MB Memory
- 12 GB hard Drive
- 14" XGA display
- IBM Li-ION system battery
- Built in 56k modem - 10/100 Ethernet
- Cisco Wireless PCMCIA Card (Aironet AIR-PCM340)
- 3.5 Disk Drive Ultrabay 2000 (120 laptops)
- ThinkPad Ultrabay 2000 Li-IonBattery (30 laptops)
- 16X DVD/CD-ROM Ultrabay 2000 Drive (available on demand)

Optional devices:

- Iomega 250 MB USB Zip drive
- IBM A/C adaptor
- Microsoft Basic Mouse (discontinued Fall 2002)

Installed Software

- Acrobat Reader
- Finale Notepad
- Host Explorer
- McAfee Virus Scanner
- HP PrecisionScan Pro (scanner software)
- MS Internet Explorer 6.0
- MS Office
- MS Visual Studio (Visual Basic, Visual C++, Visual FoxPro, Visual InterDev, Visual Studio Tools)
- NuCalc
- SAS
- SPSS
- Windows 2000