Laptop Computer Services

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SPEC Kit 275

Laptop Computer Services

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Myoung-ja Lee Kwon

University Librarian
California State University, Hayward

Aline Soules

Associate University Librarian
California State University, Hayward

Series Editor: Lee Anne George

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OFFICE OF LEADERSHIP AND MANAGEMENT SERVICES

21 Dupont Circle, NW, Suite 800

Washington, D.C. 20036-1118

(202) 296-2296 Fax (202) 872-0884

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<pubs@arl.org>

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EXECUTIVE SUMMARY

Background

Over the last several years, many libraries have developed laptop lending programs in an ever-expanding effort to provide users with the tools they need to combine their library research with other work, such as writing papers. They are also providing network access for laptops that is as ubiquitous as technology permits. In order to understand the nature of these services, the authors developed this survey to gather information on

- The type of laptop services currently offered;
- How the service is provided;
- How the service is funded;
- The benefits and challenges of the service; and
- Changes to the service since its inception.

The goal was to learn more about library operational issues and not to conduct a user satisfaction survey. Therefore, the questions focus on operational issues and deal with user issues only as they relate to operations. Eighty-four of the 124 ARL member libraries (68%) responded to the survey.

Of the 84 respondents, 76 (90%) have some form of laptop lending or network connection service, indicating that these are becoming staples in the array of offerings provided by libraries nationwide. Fifty-nine of the respondents (70%) provide wireless access to the network, either full or partial, and 57 (68%) provide network ports. Thirty-one (37%) provide network printing from laptops. Only 42 (50%) circulate library-owned laptops and 14 (17%) circulate network cards for user-owned laptops. In a

few cases, libraries only provide locations for user-owned laptop use. Clearly, in many libraries the emphasis is on connectivity rather than equipment.

Among this group of respondents, laptop programs began as early as 1994, though the vast majority (83%) began between 1998 and 2002. Fewer than four institutions added programs each year from 1994 until 1998 when 10 new institutions started programs. That rate of expansion continued until 2002, when the number jumped to 23 new services. Only three institutions have added programs thus far in 2003, but several others report having programs ready to start. A small number of respondents either do not plan to offer laptop service or have circulated laptops in the past, but do so no longer. Reasons for this include an increase in student ownership of laptops and the expense of sustaining maintenance on circulating stock. In one case, the campus computing department (which supplied the laptops) determined that the cost of the service outweighed the benefits.

Thirty-three programs (43%) were started as a result of a decision by library administration; twenty-two (29%) were due to user demand. A few began on a recommendation by library staff or a library committee. Of the 14 "other" reasons, the common factor appears to be "an opportunity," e.g., to pilot wireless technology or to leverage a donation.

Infrastructure

Fifty respondents (63%) report that laptops can be used anywhere. In their comments, however, it becomes clear that some interpreted this to mean

anywhere on campus while others interpreted it as anywhere in the library. Twenty-eight respondents expect laptops to be used either in library carrels, designated laptop areas, group study rooms, or computer labs. Of the libraries that circulate library-owned laptops or network cards, 70% do not permit the equipment to leave the building.

Where laptops can be used is largely determined by network connectivity. Wireless access is growing, but respondents' comments indicate that coverage is still spotty. (One library reported that wireless signals are blocked by book stacks.) In some cases, wireless access is coupled with network ports, while in others wireless access is the sole method of delivery. Thirty-five percent of the respondents that provide wireless access to the network have coverage in at least some parts of the library. Eighteen percent now have full coverage throughout the building and ten percent have full coverage across the campus.

User Characteristics

Almost all of the respondents target laptop services to undergraduate and graduate students (73 or 99%.) A majority also allows faculty, staff, and researchers to use the services (84%, 80%, and 58% respectively.) Eight (10%) permit members of the local community to circulate laptops and a few institutions circulate them to consortium members and anyone with authorized access to the building. Undergraduate students are the major users of these services (80%) with graduate students a close second (58%). Faculty and staff are a distant third (12%).

What's notable from comments is that funding sources have a strong influence on who is eligible to use or borrow laptops. For example, if a particular department pays for laptops and the laptops are housed in the library for that department or discipline, only those students in the department or taking classes in that discipline are eligible to borrow them. However, just because a user is eligible to borrow a laptop does not guarantee that the user will always be able to borrow a laptop when he or she wants. In some institutions, demand exceeds supply, resulting either in long wait lists or in users being turned away. Also, in cases where libraries permit renewals, a user may not have completed a

project and may be reluctant to relinquish a laptop even if there is a wait list. Some libraries control whether laptops can be renewed; others permit a limited number of renewals (generally one), leaving other users without access for twice the original loan period.

Staffing and Budgeting

Interestingly, almost half of the responding libraries said that laptop services had no impact on staffing. Existing staff simply absorbed the workload (37 or 49%) or was reassigned (15 or 20%). Only six respondents (8%) claimed to have added staff. Staff who are part of library systems departments may see laptop service as an extension of their general work. For other staff, adding any duties of any kind may be considered normal and they may not see a workload change or absorption as actually having an impact.

Undoubtedly, laptops must have some impact on systems staff (computing and/or library) and, if laptops are circulated, on staff at service desks (both permanent and temporary/student staff). Regardless of so many responses that there was no impact or need for staff change, there has been training and a shift in duties for many. Comments in the advantages/disadvantages section of the survey (see below) included a number of statements about the difficulty of "scalability" and the amount of staff time and support needed for the service. Examples of this labor-intensive work and expense include technology tracking and problems, circulation complexities, service demands, institutional systems and procedures, wait lists, and others.

Start-up costs for laptop services varied widely from zero to $150,000 with a mean of $38,662 and a median of $30,000. The majority of respondents reported that costs were for purchasing or leasing hardware (78%), activating network access (57% to 60%), and purchasing or leasing software (51%). About half of the respondents (47%) counted staff time in the start-up costs and 28% included promotional activity. Other expenses included storage carts, battery packs and chargers, printers, maintenance contracts, and small items such as extra cords, diskettes, and CDs.

What's notable is how many "unknowns" were reported. Staffing costs, particularly in cases where workload has been absorbed, are completely undetermined. Some costs are attributable to campus IT groups and may not be known for that reason. Costs for this new service are sometimes folded into other budget categories. The size of institution or program does not seem to account for the cost variations. Some of the difference is simply unexplainable.

Available budget figures tend to be for "hard" rather than "soft" costs because libraries have had to set aside or find specific monetary amounts for the former, while expenses for the latter are already incurred and buried in existing budget lines Examples of hard costs include the cost of laptops, lease maintenance agreement costs (for those institutions who choose that maintenance route), software license costs, network port costs, and costs for any staff that have been added. Soft costs include costs for workload absorption by staff, an inability to separate network support costs for walk-up jacks from the rest of the network costs, costs handled by other departments (e.g., computing) or centrally, or costs that are so diffuse that it is difficult to extract them from total library costs (e.g., the costs are distributed and included within separate funding processes for network ports, circulation staff salaries, wireless access, promotion, equipment, etc.).

Library budgets are the funding source for 51 respondents (68%), with the bulk of the money being reallocated from the existing budget. Only six of these respondents report receiving some additional funding. Thirty respondents (40%) received funds from the institution's computer budget and much of that related to infrastructure. Twenty (27%) received gifts. The institution's central budget provided funding for fifteen (20%) while a dozen (16%) benefited from targeted fundraising efforts. Other funding sources include student technology fees and grants. Most respondents pulled together funds from three or four sources to support the service.

The annual budgets for ongoing laptop service vary as widely as start-up costs. What's notable is the number of comments indicating that there is no guaranteed funding, making the future somewhat precarious. Nineteen respondents said there was no budget; eighteen said that the information was not available or that it was the responsibility of another unit; eleven indicated that expenses fell within other existing budget lines and couldn't be separated. Only 20 respondents could give a dollar figure for the budget. These ranged from a low of $110 to a high of $62,000 with a mean of $17,327 and a median of $10,000. A few institutions are "transitioning" or their programs are too new and they cannot provide this information.

Equipment Circulation

The most commonly circulated library-owned laptops are configured for wireless access (84%), followed by those configured for network access (36%). A significant number of these laptops are configured for both wired and wireless access. Circulation of network cards for user-owned laptops is a close third (29%). A small number of libraries report circulating stand-alone laptops, but only one has this as the only equipment option. A variety of other equipment is also available for users, including battery packs, mice, power cords, adapters, Internet cables, carrying-cases, external floppy drives, zip drives, CD/DVD drives with CD-burner capabilities, power bricks, and Palm Pilots.

The number of pieces of equipment available at each institution varies widely. The laptop range runs from 1 to 192 pieces. For those with wireless access, the mean is 34.5 and the median 30; for those with network access, the mean is 51.5 and the median 29. For network cards, stand-alone laptops, and battery packs, a similar pattern applies.

Software exhibits the same diversity. Of the 45 respondents, all install word processing and spreadsheet software on the library-owned laptops, and all but one includes an Internet browser. Thirty-six (80%) include some form of database program (e.g., Access or FileMaker). There is extensive availability of presentation software, primarily PowerPoint. A few (5 or 11%) install a statistical analysis package such as SPSS. Other available software programs include Dreamweaver, Photoshop Elements, Illustrator, Flash, iMovie, Endnote, and specialized software such as instructional applications for humanities and social sciences, MDL Crossfire (for

Beilstein/Gmelin), and SciFinder Scholar. In addition, some laptops include telnet/FTP, MS Messenger, Net Meeting, Adobe Acrobat (reader and writer), Windows Media Player, RealPlayer, video editing (on Macs), Secure CRT (for e-mail), Eudora, Mulberry, VPN, Kerberos utilities, Pharos Uniprint, DeepFreeze, Fortress, or Clean Slate.

Operational Issues

Equipment circulation is primarily handled by circulation or reserves desks. Media resources units are a less commonly used option. Other circulation points include computer labs, an actual "laptop library," and combinations of libraries, branches, and service points. At one institution, network cards are circulated by the circulation desk, but laptops are circulated by peers (students) from a Learning Commons.

Loan periods are mostly in the 2 to 4 hour range. Some of the variation relates to the life of battery packs. There are a couple of institutions that circulate laptops for 1 or 2 days, which suggests a different philosophy behind their programs. Some allow overnight use and combine that with the 2 to 4 hour range during the day. One allows weekend loan from late Friday to early Monday on the same basis. Another library offers 1 day, 3 day, and 1 week loan periods. One institution commented that from library to library within their institution loan periods range from 2 hours to 1 day.

The policy on renewals is almost evenly split. 25 respondents (54%) allow renewals; 21 (46%) do not. In some cases, renewals are permitted depending on demand. A number of institutions commented that they have wait lists. Again, some of the rationale behind renewals is linked to battery life. If demand is low, some libraries bring in the first laptop for recharging and loan a different laptop to the user rather than renewing. In one library, there must be at least one hour between checkouts by the same person. Some renew and switch out batteries. Another library extended the loan period to offset a decision to stop renewals. In one library, staff "use discretion" whether to renew.

Equipment reservations are less common. Only seven respondents (15%) take reservations; 40 (85%) do not. Instead, most work on a "first come, first served" basis. A couple of libraries make use of the circulation hold function if all equipment is checked out; a couple use a manual system, placing names on a wait list. One library permits each user to make a single reservation each day and a reservation for one night per week and one weekend per term. One library uses a wait list for the last four weeks of the fall and spring semesters when, presumably, demand is highest. One library divides its equipment, setting aside a few pieces for reservations and leaving the rest on a "first come, first served" basis.

Equipment Returns

There are two major activities involved in equipment returns—discharging from the circulation system (45 respondents or 96%) and inspecting for tampering or broken parts (42 or 89%). Other common activities include recharging the battery (66%) and reghosting (40%). Some libraries automatically recharge batteries after every use; others replace batteries and recharge the used battery while a new one is in the laptop. The latter situation requires sufficient spares to substitute. Some do reghosting as part of their regular routine, others do it only as needed. A few (9 or 19%) do minor repair work on site.

A few respondents clear the previous borrower's user profile from the system, helping protect privacy. In other situations, privacy remains the user's concern, although statements may be made in user documentation to alert users to this need. Of course, those who reghost ensure the user's profile is completely erased. On the other hand, there is one library that instructs students to save to their network drive to prevent loss of data if the laptop shuts down spontaneously.

A number of libraries have "check sheets" of some description to ensure all steps are carried out. These instruction sheets go into detail about what to check to ensure all equipment is returned and in working order. In one case, a step is included to ensure that a user help sheet remains in the machine.

The majority of machines are ready for re-use within 20 minutes. Twelve respondents (29%) turn equipment around within 5 minutes; 10 (24%) within 10 to 20 minutes. Another five (12%) complete the turnaround within 30 minutes. The remainder take

1, 2, or 3 hours, and two respondents take 24 hours. Much of the variation in the hourly range relates to whether batteries need to be recharged.

Equipment Fines and Fees

Forty-three respondents (91%) have fines of some sort for equipment that is returned late, but fine amounts are highly variable. Charges may accrue per minute (9 respondents), per hour (20), or per day (5). The range of fines is broad, from $.01 to $3 per minute; $.25 to $50 per hour; and $1 to $20 per day. Some institutions vary fines from library to library within the institution. Some vary fines between the first hour and subsequent hours. Some have grace periods before fine calculation begins and others have caps on fines. There is no consistency whatsoever.

Most libraries (94%) charge a replacement fee for damaged or unreturned equipment. Beyond that, policies vary. Ten (23%) charge a flat fee per piece of equipment; four others add on a processing fee. Eight (19%) charge the actual replacement cost, while five others add on a processing fee. Three (7%) charge the actual repair cost. One library indicated that this has not arisen often and the result is usually a matter of negotiation based on repair/replacement cost plus processing. It is not clear if the difference between "actual" repair/replacement cost and flat fee relates to whether the institution has a warranty or service contract, but that is possible.

Replacement Policy

In this case, "replacement" means library-initiated equipment replacements, either periodic or systematic, for upgrades, normal wear and tear, etc., and not replacement costs paid by users because of loss or damage. The policies for equipment and software replacement are primarily driven by budget availability. After that, the factors vary for equipment and software.

For equipment, the next most common factor is breakage (24 respondents or 53%), followed by a regular schedule (12 or 27%). A few base their replacement policy on keeping pace with institutional upgrades and others simply haven't had their programs long enough to determine what they will

do. Some decisions relate to service contracts, if they have them. Disturbingly, a number have no idea what they will do because they have no budget line for replacements.

For software, the second most important factor is institutional upgrades (17 respondents or 38%). In those cases, such upgrades are licensed campuswide, so no local library budget is required, simply the effort of installing the upgrades. Nine respondents each (20%) replace software as needed or on a regular schedule.

Publicity

Not surprisingly, the majority of respondents (62 or 83%) highlight this service on the library Web page. This method of promotion is free and entirely within the library's control. Beyond that, publicity is included in library orientations and instruction, library newsletters, flyers, articles or news releases in local papers, correspondence with users, and bookmarks. In addition, respondents spread the word via signage, focus groups, banners, booths at campus fairs, posters, bulletin boards, library doors, conversations, publicity through central campus computing Web pages and resource handbooks, faculty Web sites, campus news media, course Web management systems, e-mail, and word-of-mouth. One institution promotes the use of wireless, but not laptop check-out itself. At one end of the publicity scale, some have Web pages devoted exclusively to the laptop service. At the other, some said that publicity was not necessary as campus wireless access and related services were already widely known.

Impact of Laptop Services

All but a few respondents report that the level of use of laptop services is either moderate or high. Only 11 (14%) said use was low. In some of these cases, however, service is still new and if patterns from other institutions are any indication, use will increase.

Twenty-six respondents (45%) did not have circulation statistics available, but for the other respondents, circulation ranged from 450 to over 100,000. The most frequent responses were in the 1,000 to 4,999 range (14 respondents or 24%). These figures, however, must be considered in light of the range

of laptops available, whether laptops are provided with wireless or network access or stand alone, and how long the service has been available. Since 31% of respondents only began their service in 2002, these figures are bound to change.

More than half of the respondents (42 or 56%) have seen changes in their laptop services since their inception. Surprisingly, more than a third of these (15 or 36%) services are less than two years old. The big factor in the change is technological—the growth of wireless access, port availability/growth, increased number of available machines, hard-wired network drops, etc. Also mentioned were software login methods and a reduction of peripherals. One respondent reported a shift in philosophy about laptop service.

Originally, the library viewed laptops the same way we would a book with a specific due time, renewals controlled by the library and only allowed when there was no waiting list. In response to a user survey, we lengthened the loan period and now allow one renewal even if there is a waiting list. Students viewed the laptops the same way they view workstations in a lab and didn't like giving one up if they weren't done with it just because there was a waiting list.

Other changes have resulted from security and workload. Theft of equipment, damage, time to reconfigure laptops, etc. are onerous issues. Some of those that have not seen changes are among the newer services, though 64% of them began service between 1995 and 2000.

Advantages and Disadvantages

For both laptop service and wireless network access, respondents provided slightly more comments regarding advantages than disadvantages.

Laptop Service Advantages

The majority of respondents were very positive about user response and feedback and how it had enhanced their public reputation, image, and relations.

Users
o Users can research and write papers, do e-mail, use applications, all in a "one-stop-shopping" environment, which improves user capabilities and productivity.
o Laptops provide portability and flexibility.
o Users can choose privacy to work or can chat with friends.
o Small groups of users can work on course projects and better services encourage team/group work.
o Users can use their own equipment, reducing demand on library equipment.
o Users can use their own data directly at the library or can download resources directly to their own machines to take home for working on papers.
o Users without laptops or PCs now have access to these tools.
o Users have another option when the computer lab is full.

Public Relations
o The program is good for public relations.
o The laptop program brings users to the library.
o The library can partner with campus computing.

Facilities and Equipment
o There is additional flexibility in user space and capabilities.
o Computing is provided in areas not formerly served.
o There is an additional access method to library resources in multiple locations.
o The hardware configuration is controlled.
o Laptops provide portability and flexibility for study station planning.
o Space is released for other services and activities.
o Laptop use frees dedicated public workstations and increases service and access without additional equipment purchase. (Note: A number of institutions do not offer office tools on desktop computers with database

and online journal access.)

o Frequently, laptops offer more capabilities than the online catalog workstations. (See preceding note.)

o The need for library-supplied desktop computers is reduced. (Note: In question 27, however, no respondent indicated that desktop workstations or the number of workstations had been reduced. This is an expectation for the future.)

o Laptops provide a supplement to computers in the reference area.

o Users who use their own equipment reduce demand on the library.

o Laptops allow different library-use models.

o Laptops can be used in the stacks by both users and staff.

o For some, the use of batteries eliminates the need to add outlets.

o There are financial savings in not having to provide additional full workstations, outlets, etc.

Laptop Service Disadvantages

Many issues relate to labor and costs. At one extreme, one institution responded that the service was more work than it was worth; at the other, one institution responded that there were no disadvantages at all.

Users

o There are insufficient laptops; most institutions cannot keep up with demand. One institution reported, however, that a campus computing initiative decreased the use of their laptop service.

o Users need education about equipment, software, peripherals, protecting data, privacy, saving data and documents, etc.

o Printing presents difficulties, especially with debit printing systems.

o Users demand more functionality/access than some can provide.

o Users demand reservation/paging services, which can be difficult or expensive to implement.

o There are security issues (hardware and data).

o There are privacy issues, primarily in helping students to protect their privacy, but one institution reported that students can have too much privacy when searching the Internet.

o The loan period is limited.

o One institution commented that the time spent helping users with laptops and the program itself detracts from staff-user interactions about library resources.

o One institution reported that there was less flexibility and productivity for users.

o One institution thought there was potential for abuse.

o One institution wrote that some students had trouble remembering to bring their own network cables.

Labor, Time, and Costs

o The service is costly and, for some, not scalable.

o Staff time and support is labor intensive and expensive, as staff deal with technology tracking and problems, circulation complexities, user verification, service demands, institutional systems and procedures, wait lists, etc.

o Equipment, maintenance, and replacement are a cost and workload issue, as are theft, damage, loss, and repair.

o There is a need for staff instruction about the technology and a lack of technological support generally.

o Battery charging and maintaining the charge are problems.

o One institution reported difficulty in maintaining different images on laptops of various ages and configurations.

Space

o Ports are not available to individuals without laptops.

o One institution commented that the use of laptops might produce a lot of unused space.

Wireless Network Access Advantages

Users

o   Freedom, flexibility of space, and convenience are major advantages.

o   This is one more service for users.

o   Wireless access helps to provide an additional method to connect to library resources in multiple locations.

o   Wireless access provides computer connectivity in areas where wired connections are not feasible.

o   In some cases, wireless access extends the library beyond its walls.

o   Wireless access also extends user seating options.

o   Users can bring their own equipment.

o   Wireless connectivity enables access to e-mail, Internet, library resources, etc.

Infrastructure

o   Wireless access is easy and relatively inexpensive to set up in a single area for small numbers of simultaneous users.

o   Wireless access obviates the need to retrofit an entire building with network and cable capability and is cheaper.

o   Wireless access decreases the need for more student computer stations while increasing the amount of access.

o   Staff can also benefit from wireless access for projects in the stacks.

o   Wireless laptop carts provide an alternative to a hard-wired lab or computer classroom.

Wireless Network Access Disadvantages

Users

o   Wireless access, for many, is not yet extended throughout their library buildings, limiting flexibility.

o   Some users complain about typing noise.

o   Privacy is an issue.

o   For some users in some institutions, there is a requirement that they invest in hardware and security software.

Infrastructure

o   Security is an issue (e.g., because of shared network technologies.)

o   Some experience "dead" zones (e.g., in stacks areas.)

o   Performance issues include speed, interference, connection problems, reliability, robustness of bandwidth, and degradation when there are large numbers of users.

o   There are configuration problems for some laptops.

o   For one institution, scalability is an issue.

o   Start up costs were cited by one institution.

o   Damage and theft are issues, even with the wireless hardware.

o   There are more technical and support issues for staff to handle.

As mentioned as a caveat in the list of laptop service advantages, laptops have not eliminated desktop workstations or reduced the number of workstations. A number of interesting comments were received, however, that indicate that the expectation of future reductions may not come to pass. One respondent commented:

> We have avoided increasing the number of workstations, but demand is sufficiently increasing every year that the library seriously needs to add to our public workstation farm. Laptops augment access; they don't replace it.

Service Evaluation

Of the 71 respondents, 58 (82%) rely on informal user feedback as their most common form of evaluation. Other techniques for evaluating laptop services include tracking the number of equipment circulations (39 respondents or 55%), conducting user surveys (22 or 31%), periodically interviewing users (11 or 16%), and conducting focus groups (5 or 7%). In comments, institutions described their use of online discussion lists, e-mail surveys, feedback surveys at check-out, and graphs that show the number of users connected (taken every five minutes).

On a satisfaction scale of 1 to 5, where 1 was "very dissatisfied" and 5 was "very satisfied," 19

(26%) were very satisfied, 35 (49%) were satisfied, and 13 (18%) were neither satisfied nor dissatisfied. Only five (7%) indicated they were dissatisfied and no one was very dissatisfied. Comments reflected much of what was listed under "advantages and disadvantages," namely freedom of movement and independence from desktop computers in the library versus problems of supply and demand. Many institutions, at this point, could use more laptops.

Conclusions

Laptop services are currently a thriving and popular service. In spite of the problems—workload, cost, technology issues, etc.—users express great satisfaction and libraries, overall, see these services as improving their offerings to students, enhancing their reputation on campus, and involving them in the campus technology and computing process, both for daily action and for decision making.

How these services will change as users bring their own laptops to the library remains to be seen. At one university, the library staff are involved in a discussion that is "considering providing information to new students and their parents to help them choose the basic computer equipment needed for effectively pursuing studies [here]." This will not be mandatory, but is likely to affect user purchases. Of interest, also, is the institution that checks out PDAs. Is that the wave of the future? Will PDAs supplant laptops, only to be supplanted by newer technology a few years after that?

On the negative side, apart from the usual workload, time, and cost issues, there is also a lack of clarity about future funding. What will be done when computers require wholesale replacement or major expenditures emerge? Further, libraries are definitely unclear about actual costs. Certain "hard" costs, like the cost of a computer or the one-time cost of an upgrade, may be known, along with some "soft" costs, like the re-assignment of a staff member half-time to a laptop service. Overall, however, no one knows the real cost of work that is absorbed and so fully integrated into other activities that it is inseparable (e.g., circulation staff checking out laptops, systems staff making a repair, or librarians devising publicity or user instructions.)

What is clear is that laptop services are evolving. The question, however, is whether this is a library service or a computing service or a shared service between the two. The balance varies from institution to institution. Certainly, computing services has a strong responsibility for infrastructure and infrastructure support, but libraries' roles relate to the distribution of content. As users' ability to access information shifts with technology, laptops are one tool that facilitates access to and retrieval of information resources.

As is typical in libraries, our focus is on laptop provision as a service, and we enter into it regardless of whether funding is secure or our plates are already full. We see a user need and we respond. As that need shifts, we will shift with it, funding services on a shoestring or a grant or a donation, absorbing workload and dealing with problems, and continuing our long-term commitment to service first.