

DAIRL

A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

MOBILE TECHNOLOGIES, MOBILE USERS: IMPLICATIONS FOR ACADEMIC LIBRARIES

by Joan K. Lippincott, Associate Executive Director, Coalition for Networked Information

Introduction

More and more Americans are using devices such as cell phones to seek information, not just to communicate.¹ At the National Endowment for the Humanities (NEH) Office of Digital Humanities, staff are pursuing interest in mobile technologies that can be used in museums and historical places and that deliver “scans of primary documents, audio-visual materials, and scholarly analysis to enhance [one’s] understanding of the site.”² They are interested in funding projects that will address standards to assist in making these ideas practical. Will libraries be involved in similar efforts to supply content and services for access via mobile devices such as cell phones?

When conversation among academic librarians turns to the topic of use of mobile devices and the implications for libraries, it is common to hear the refrain: yes, we ought to be thinking about that, but right now this issue is not at the top of our agenda. Why should librarians actively investigate mobile technologies and plan for services that take into account a range of devices beyond desktop and laptop computers? Some blogs and conferences are beginning to address issues related to mobile technologies or to present projects by early adopters, but treatments of the broad range of issues related to libraries are few.³ This brief survey of mobile technologies, learning, and libraries provides some examples of innovative ways in which a limited number of academic libraries are already designing services around mobile technologies and mobile users and lays out the issues that should be discussed on individual campuses that would like to examine their role in the move to mobile.

We are well aware that most members of our

campus communities are highly dependent on mobile technologies. The 2008 survey by the EDUCAUSE Center for Applied Research (ECAR) reported that 82% of students on the campuses participating in the survey own a laptop. About one quarter of students who identify themselves as early adopters of technology access the Internet from handheld devices weekly or more often. Students are heavy users of their hardware, spending an average of 19.6 hours per week using an electronic device.⁴ While not many undergraduates own PDAs or similar devices, it is likely that graduate students, especially those attending professional schools, will be the early adopters of these devices on campus. A survey at Harvard Medical School in 2007 showed that fully 52% of their medical students owned PDAs. The most-used application (by 26% of respondents) was reference information; only 6% reported subscribing to podcasts.⁵ Today’s college students are also more versatile in their use of devices and the Internet than are older generations. For example, college students watch television and listen to radio on the Internet much more than do older generations.⁶ They are less likely to dismiss the usefulness of information on small screens than are older generations.

University Libraries and Mobile Users

Many faculty and others involved in the educational process express concerns that Net Gen or Millennial students are wasting their time with technology and that their use of technology may even hinder their learning. However, some research sponsored by the UK’s Joint Information Systems Committee (JISC) reported that students who are effective learners in the digital environment:

- Use mobile phones, laptops, and PDAs to support their learning

- Use software to create, manipulate, and present content
- Seek peer support via informal networks of family by using e-mail, texting, chat, and Skype, “an underworld of communication and information-sharing invisible to tutors”⁷

Many Net Gen students think of their mobile devices as more than efficient or convenient pieces of hardware; they view the devices as integral to their daily lives: “Many speak of their personal devices as individualised learning environments which, if possible, go everywhere with them. As a result, they express a need to integrate personal technologies with institutionally based systems—for example downloading podcasts onto a palmtop or uploading work from a storage device, such as a USB memory stick, to an institutionally based computer—to provide a seamless flow of study.... Not being able to do so causes them frustration.”⁸

While the studies cited above are important for understanding the student landscape today, it is even more important that information professionals understand the types of devices their own students and faculty use and the uses they are making of those devices. By analyzing existing survey data, consulting with other institutional units to see what type of data they already collect and how you can partner with them, and supplementing existing quantitative data with qualitative data through focus groups, interviews, or observations and field studies, you can develop a profile of students and faculty (or sub-groups of these populations) in your particular university. Understanding the profile of your user population should underpin planning for content and services for mobile devices.

As university library personnel begin to plan how they will address the needs of their clientele who use mobile devices, they should first clarify the meaning of “mobile library users” in the context of their campus. Mobile users can be:

- Faculty conducting research or teaching activities
- Students who study entirely at a distance
- Students whose courses include online and on-campus components
- Learners in the field, e.g., clinical settings, professional internships
- Learners using mobile devices such as clickers in the classroom
- Learners using mobile devices for learning activities outside of the classroom, e.g., class assignments and group projects

It is likely that more than one type of use will be evident on any given campus, and faculty may have both similarities and differences from student use.

Since services for distance-education students may have different characteristics than those for students who primarily use mobile devices in their classrooms and other campus buildings, each institution should gather data on the types of devices their students employ, the prevalence of distance education courses, and the use of mobile devices for on-campus courses. In addition, campuses need to have data on the types of mobile devices students own and whether they are using them for educational purposes. Some types of devices they may already be using are mobile/smart phones, PDAs, clickers/personal response systems, MP3 players/iPods, and laptops/notebook computers. It is likely that new mobile devices will be coming on the market, such as Livescribe’s Smartpen,⁹ with which a student can record notes from a lecture, upload them to a computer, and tap on the notes on paper and hear an audio recording of them.

As libraries consider their re-tooling for mobile users and mobile devices, they should examine the consequences of mobility and the opportunities for innovation in the areas of content, systems and tools, services, and environments, both physical and virtual.

Mobilizing Content

What will library users want to access and actually read on mobile devices? What types of library users will be most likely to want to access content on mobile devices? At present, few libraries offer licensed content for mobile devices. An exception is in the medical field where some libraries, such as the University of Alberta, offer an array of health-science reference sources for their users.¹⁰ The notion of offering authoritative reference sources to students and faculty in clinical settings seems a natural for a first offering of content tailored to mobile devices.¹¹ One can imagine offering reference sources for other researchers (students or faculty) in the field, such as those doing agricultural studies, environmental data collection, anthropological work, or social-services work in the community. Such individuals may find ready access to directories, handbooks, and the like to be of great utility in the field.

As higher education institutions increasingly use mobile devices for some courses, there may be opportunities for tie-ins with library content and services. For example, a company is offering English lessons with test preparation materials for use with cell phones; libraries could offer access to dictionaries or other language reference tools that would be cell-phone compatible. Libraries might want to offer a set of mobile-formatted reference materials for students studying abroad. In some subject areas, students and researchers rely on quick reference sources; libraries might consider developing brief guides to reference sources by discipline and then linking to reference sources compatible for cell-phone use. In the life sciences and medical areas, students and researchers often use sets of images of subjects like

plant and animal species, cells, diseases, and the like; ornithologists and others may use audio files. Institutions may subscribe to databases that these scientists use or may house them in their institutional repositories. Providing formats for access via mobile devices might be of interest to these user groups.

At University of Nebraska–Omaha, the library has purchased the e-book reader Kindle and is lending it, along with access to popular fiction e-books, as a new service. Their library patrons had been asking for access to popular fiction and the service has proved very popular. This library is also experimenting with using Kindles to fulfill interlibrary loan book requests, filling them “in a matter of minutes.”¹²

Another aspect of providing content for mobile devices is the opportunity to make university-affiliated content available for downloading to MP3 players and other devices. At the Arizona State University, the Library Channel provides access to content such as podcasts and videos on information literacy and guest speaker lectures.¹³ Libraries may want to consider how they could make some of the content in their institutional repository more available for mobile devices, if the content includes course lectures, podcasts, or similar content.

Mobilizing Services and Systems

Libraries have been providing reference service by phone for many years, and most university libraries also provide reference services by e-mail, instant messaging, and chat. At least in the US, few libraries are using text messages to communicate with users at this point. Some library users can access some factual information via their mobile devices, including their record of items checked out, the hours the library is open, and directions to the library. Some university libraries have begun to make versions of their catalogs available for access on mobile devices. The North Carolina State University (NCSU) MobiLIB catalog interface, for example, is optimized for mobile devices.¹⁴ In addition, NCSU Libraries offers access via mobile device to information about availability of computers, library hours, and other general information.

The Open WorldCat offers citation styles for many of its entries; students needing quick access to the correct citation format for the sources for their paper might find access to WorldCat by cell phone to be useful. OCLC is experimenting with what it takes to make WorldCat more mobile.¹⁵

As information resources in new formats for mobile devices are made available, the library may serve as a training center for the devices and the use of the content; this has happened at the University of Alberta, which conducts the training for the campus use of PDAs for information resources. Some libraries, like Arizona State University, mentioned above, are developing podcast tutorials for information literacy purposes. Libraries can

also consider whether their users might benefit from simple tutorials on finding a periodical article or evaluating Internet resources that would be mobile phone-accessible.

As information professionals consider what types of services they might offer that would employ mobile devices or be accessed by users with mobile devices, they need to target specific user groups, such as students at a distance, field-based students, or students in professional programs, e.g., health sciences, education, social work, or journalism. Some of these disciplines are rethinking their curriculum so that it more realistically prepares students for the way professionals are working today. For example, at the Northwestern University journalism school, they decided, “At a time when newspaper readership is steadily declining and many readers are bouncing from blogs to Internet video to get their news, the new approach will send student reporters out into the field with video iPods and digital camcorders, as well as spiral notebooks.”¹⁶ These students might benefit from some readily accessible reference tools, too.

Mobilizing Environments

The use of mobile devices also has implications for the physical spaces in libraries. For example, some libraries are loaning mobile devices, including iPods and video cameras, and many are loaning laptops. Service desks need to be configured to house the hardware and signage needs to convey the availability of the equipment. Use of all of this equipment has implications for the need for electrical outlets and network connectivity throughout the library facility since some users will do their work in-house. In addition, students who bring their own devices need access to electrical outlets in order to recharge their own equipment. At the Montesquieu Learning Center at Tilburg University in the Netherlands,¹⁷ some lockers with electrical outlets are available so that students can recharge their devices while they are off doing other things.

Many libraries are developing new types of collaborative learning spaces when they renovate; these include group study rooms, multimedia production spaces, and rooms with equipment that enable students to practice delivering multimedia presentations. All of these types of spaces support students’ use of mobile devices in creating content for their coursework. In addition, some institutions have centers that are oriented towards encouraging faculty to use technology effectively in their teaching. The Open University Library’s Digilab¹⁸ is an innovative facility that provides the latest technologies in an engaging physical space for faculty to try out new products and get advice from professional staff in the facility. Libraries’ instruction classrooms may be employed during workshops to teach students and faculty about how to use new mobile devices on the market and how to upload content to their devices.

As students increasingly develop innovative digital

content, such as videos, on their mobile devices, libraries should consider not only providing spaces or small rooms for collaborative work on projects, but spaces to display finished work. These could be posters, digital displays, or screen savers. If universities want to highlight the type of work their students or faculty are doing in the field, it would be interesting to have the capability for some real-time streaming of data into a display in the library.

Conclusion

According to the EDUCAUSE Evolving Technologies Committee, the University of South Dakota has been issuing PDAs to students since 2001 and they are preloaded with materials, including reference books.¹⁹ Other institutions may be planning or offering similar programs. Does the library want a seat at the table when such programs are developed and offered? Does the library want to play a role in the selection and licensing of content for mobile devices in such cases or is this a role better played by the campus bookstore? Does the library want to become a service hub for mobile content and devices, or is this a role better played by IT or some other group? Each institution needs to consider what role the library should play in relation to mobile content and devices. If the library is not at the table, will other campus units make decisions that result in incompatibility with equipment and content purchased and licensed by the library?

Libraries may want to approach the consideration of provision of content and services for mobile users at two levels, internally within the library and at an institutional level. Some issues that the library may wish to examine in-house are the library's role in:

- Licensing information products for mobile devices
- Hosting or pointing to institutional content intended for mobile devices, e.g. podcasts
- Preserving new content types and formats
- Providing instruction on the devices themselves, not just access to content
- Providing space for new equipment and work styles

Libraries may want to take a campus leadership role and consider establishing a task force or study group that involves individuals representing various sectors of the university to examine issues related to mobile users, or if such an institution-wide group already exists, libraries may want to ensure that they are represented. The group may want to address:

- Specific goals and objectives for mobile content/services (in research and instruction)
- The current state of uptake of mobile devices by campus sectors
- Target audience for anticipated content/services
- Stakeholders who should be involved in the detailed planning

- A clear understanding of resources needed and funding streams
- A plan for assessment of the effectiveness of the new content/services

As with most technology developments, this one is fast-moving. This is not a time to sit on the sidelines as other campus units are developing services for mobile users and licensing content for mobile devices. Academic libraries should make conscious choices about what they want to offer in this arena and act accordingly.

- ¹ John Horrigan, "Mobile Access to Data," Pew Internet & American Life Project, March 2008, http://www.pewinternet.org/PPF/r/244/report_display.asp.
- ² David Weinstein, "NEH and Mobile Media," ODH Update blog, National Endowment for the Humanities, Office of Digital Humanities, July 17, 2008, <http://www.neh.gov/ODH/ODHUpdate/tabid/108/EntryID/72/Default.aspx>.
- ³ Ellyssa Kroski, "On the Move with the Mobile Web: Libraries and Mobile Technologies," *Library Technology Reports* 44, no. 5 (July 2008). Also: Gil Needham and Mohamed Ally, *M-Libraries: Libraries on the Move to Provide Virtual Access* (London: Facet Publishing, 2008); this article draws on a chapter by Joan Lippincott in *M-Libraries*, which is a collection of papers from the first M-Libraries conference held in Milton Keynes, England at the Open University in 2007.
- ⁴ *ECAR Study of Undergraduate Students and Information Technology* (Boulder, Colorado: EDUCAUSE, 2008), <http://connect.educause.edu/Library/ECAR/TheECARStudyofUndergradua/47485>.
- ⁵ This study was reported on by Joseph C. Panettieri, "Waiting on the Wave," *Campus Technology*, March 1, 2007, <http://campustechnology.com/articles/45244/>.
- ⁶ Zogby International, January 31, 2007.
- ⁷ *In Their Own Words: Exploring the Learner's Perspective on E-Learning* (JISC, 2007).
- ⁸ Ibid.
- ⁹ Livescribe, <http://www.livescribe.com/>.
- ¹⁰ University of Alberta Libraries, "PDA Zone," <http://www.library.ualberta.ca/pdazone/index.cfm>.
- ¹¹ An excellent Web site developed and maintained by Megan K. Fox at Simmons College Library—PDAs, Handhelds, and Mobile Technologies in Libraries—provides links to some examples of libraries, particularly those in medicine and the health sciences, and their content and services for mobile devices. See <http://web.simmons.edu/~fox/pda/>.
- ¹² Joyce Neujahr, comment on "Amazon Plans to Market Its E-Book Reader to Colleges," *The Wired Campus, Chronicle of Higher Education*, August 25, 2008, http://chronicle.com/wiredcampus/article/3268/amazon-plans-to-market-its-e-book-reader-to-colleges?utm_source=at&utm_medium=en.
- ¹³ Arizona State University Libraries, "The Library Channel," <http://lib.asu.edu/librarychannel/>.
- ¹⁴ North Carolina State University Libraries, "Catalog WS," <http://www.lib.ncsu.edu/dli/projects/catalogws/>.
- ¹⁵ Lorcan Dempsey, "WorldCat in Your Pocket," Lorcan Dempsey's weblog, January 19, 2005, <http://orweblog.oclc.org/archives/000544.html>; also see a model of mobile WorldCat at <http://mobileworldcat.org/>.
- ¹⁶ Katherine Mangan, "Journalism Dean at Northwestern U. Develops Curriculum with Increased Emphasis on Multimedia and Marketing," *Chronicle of Higher Education*, July 20, 2007, <http://chronicle.com/daily/2007/07/2007072002n.htm>.
- ¹⁷ Tilburg University, Montequieu Learning Center, <http://www.tilburguniversity.nl/services/lis/mlc/>.
- ¹⁸ The Open University, Digilab, <http://digilab.open.ac.uk/>.
- ¹⁹ Art St. George et al., "Imagining Tomorrow's Future Today," *EDUCAUSE Review* (Nov./Dec. 2007): 107–127, <http://connect.educause.edu/Library/EDUCAUSE+Review/ImaginingTomorrowsFutureT/45226>.