BRIEF COMMUNICATIONS

Reference librarians' perceptions and use of Internet resources: results of a survey of academic health sciences libraries

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As roles and responsibilities related to Internet sites and resources become defined more clearly, librarians continue investigating use of the Internet and perceptions about its impact on library operations. Key issues related to information professionals' use of electronic communications technology include investigation and utilization of available resources, incorporation of selected resources into the repertoire of traditional reference services and collections, identification of the special needs of patrons, and decision making regarding librarians' level of responsibility for creating and monitoring new resources and new methods of formatting, storing, searching for, and retrieving information [1–4].

Academic health sciences libraries were surveyed in 1994 to obtain a snapshot of the state of Internet usage and establish a baseline for additional investigation. This paper reports results of the survey, which focused on public services aspects of the Internet rather than on technical issues.

SURVEY GOALS AND METHODS

The goals of the survey were to learn which Internet tools and resources were used most often by reference librarians; how these tools and resources affected libraries, staff, and patron services; and how reference librarians perceived changes in professional practice related to the use of the Internet. Barriers to access, institutional involvement, staff development, end-user training, and marketing of Internet sources and services also were investigated.

Reference department heads were chosen as the survey population. In libraries where no such position existed, parallel positions or individuals whose primary responsibility was to provide reference services were targeted. In answering survey questions, department heads were asked to consider the reference department, librarians, and support staff as a single unit.

The survey consisted of eighteen questions in a variety of qualitative and quantitative formats. These included dichotomy and open-ended questions, Likert scale ratings, and rankings based on a given list of items. The survey was mailed to 147 academic health sciences libraries in the United States and Canada linked to institutions identified from 1991–92 Annual Statistics of Medical School Libraries in the U.S. and Canada [5]. The survey responses represented 103 academic health sciences libraries (a response rate of 70%) and over 489 full-time equivalent reference staff.

INTERNET USE AND POPULAR TOOLS, RESOURCES, AND ACTIVITIES

The first goal was to assess the extent to which reference librarians use the Internet, and to identify which tools and resources were used most often. Of the 103 libraries responding to the survey, 102 had staff access to the Internet. Forty percent of surveyed reference librarians reported accessing the Internet an average of one to three times per week, and 20% accessed the Internet four to six times per week. Twenty-three percent used Internet resources more than six times each week.

Such frequent usage was not necessarily typical. For example, in January 1994 nearly 20% of respondents never used the Internet. Informal feedback gathered in 1995 indicates, however, that librarians who previously did not use the Internet have begun to incorporate its use into everyday reference services. Librarians' use of the Internet expands considerably as new, well-monitored sites and services are made available. Reference staff comment that the Internet has been valued highly as a means of accessing up-to-date information, materials, and policies not available in the print literature.

Survey results revealed a direct correlation between the popularity of a particular tool or resource and perceptions concerning its reliability and ease of use. Librarians reported using Internet tools and resources primarily to communicate with colleagues or to find information for use in answering reference questions. In open-ended questions, 48% of respondents cited "to answer reference questions" as a major benefit and use of the Internet.

Another open-ended question asked respondents...
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to identify which resources and tools were perceived as most useful in daily reference activities and routines. Commonly cited resources and activities included telnet, which was utilized frequently as a mechanism for accessing information or facilitating communication among colleagues and patrons. Approximately 87% of surveyed librarians also found telnet useful for accessing remote sites, library catalogs, and public and commercial databases. Also popular was telnetting to remote databases and vendors such as MEDLARS, BRS (now Ovid), DIALOG, Online Mendelian Inheritance in Man (OMIM), Genbank, Morbidity and Mortality Weekly Reports (MMWR), CRISP, the Federal Register, and other resources. Electronic mail, OPACs, Gophers, and listservs also were used heavily and appear to have become well integrated into the mainstream of traditional reference sources.

In comparing the perceived usefulness of a tool or resource to the extent of its use, it became clear that the most popular information tools and resources also were deemed by respondents to be the most efficient and effective. Conversely, those that were not considered user friendly and reliable were not utilized frequently. Among tools and resources that were least useful to reference staff in their daily activities were wide-area information servers, Veronica, and Archie.

As of January 1994, 35% of survey respondents considered the World Wide Web to be "very," "somewhat," or "slightly" useful. At that time, the Web had not been used heavily by reference staff. Mosaic and NetScape have emerged more recently as popular and intuitive interfaces, and Web traffic is estimated to be growing rapidly.

INTERNET IMPACT ON LIBRARY OPERATIONS

The Internet has had a tremendous impact on library services, collections, policies, and missions, but many Internet tools and resources are not yet fully integrated into the existing library infrastructure. To assess the impact on library operations, the survey presented a variety of statements concerning librarians' perceptions and assumptions about the Internet (Table 1). Respondents were in clear agreement that library staff have easy access to the Internet, that librarians are comfortable exploring this new technology, that the Internet is useful in answering patron queries, and that it would continue to influence public services.

The survey also elicited comments on how the Internet had affected three important areas: staff development, patron services, and user education. Although 37% of surveyed libraries offered end-user training programs as of January 1994, there was no statistically relevant consensus concerning whether user education had changed significantly as a result of the growing popularity of the Internet.

Fifty-eight percent of responding librarians asserted that staff development practices had changed as a result of Internet use. Although no direct correlation can be made, this finding may be related to the high percentage (46%) of libraries also reporting having in-house Internet staff training programs. A total of 83% of responding reference staff had attended either in-house Internet training or a workshop sponsored by a campus facility or library association. Librarians commented that the Internet had opened up a world of information and eased communication between colleagues.

When asked if public services had changed as a result of Internet use, 86% of librarians agreed. Respondents said, for example, that the Internet had been used to send messages to patrons and post reference questions and answers. One library that provided in-house Internet terminals for staff and patrons reported logging 3,500 e-mail transactions and 700 other internal Internet connections each month. While such usage may be atypical among academic health sciences libraries, it does demonstrate the potential demand for use of the Internet.

PATRON USE OF THE INTERNET

Nearly 60% of responding libraries had end-user Internet terminals in the library and reported that patrons posed reference queries about the Internet. Comments indicated however, that patrons still found Internet tools and resources difficult to access and use. Comments also revealed that reference staff were not fully confident about patron ability to navigate and quickly locate authoritative resources. Reference staff

<table>
<thead>
<tr>
<th>Statement</th>
<th>% agreeing</th>
</tr>
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<tbody>
<tr>
<td>Reference staff and public services</td>
<td></td>
</tr>
<tr>
<td>Reference staff have easy access to the Internet.</td>
<td>90%</td>
</tr>
<tr>
<td>The Internet impacts on public services.</td>
<td>87%</td>
</tr>
<tr>
<td>The Internet is useful in reference department daily activities.</td>
<td>75%</td>
</tr>
<tr>
<td>Reference staff are comfortable exploring new technology.</td>
<td>75%</td>
</tr>
<tr>
<td>The Internet is useful in answering reference queries.</td>
<td>61%</td>
</tr>
<tr>
<td>Patrons use of the Internet</td>
<td></td>
</tr>
<tr>
<td>Patrons ask questions about Internet tools and resources.</td>
<td>63%</td>
</tr>
<tr>
<td>Patrons have easy access to the Internet.</td>
<td>38%</td>
</tr>
<tr>
<td>Patrons find Internet resources to be useful.</td>
<td>38%</td>
</tr>
<tr>
<td>Patrons are comfortable exploring new technology.</td>
<td>11%</td>
</tr>
<tr>
<td>Internet resources as useful and functional</td>
<td></td>
</tr>
<tr>
<td>Using Internet tools and resources saves staff time.</td>
<td>31%</td>
</tr>
<tr>
<td>Internet resources are authoritative and reliable.</td>
<td>13%</td>
</tr>
<tr>
<td>Information found in the Internet is easily located elsewhere.</td>
<td>7%</td>
</tr>
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Table 1
Reference staff assumptions and perceptions about Internet tools, resources, and usage

Bull Med Libr Assoc 83(4) October 1995
also were aware that the Internet did not always function as a reliable source of viable end-user information.

When asked how often reference staff members referred patrons directly to Internet resources, 89% of respondents said they “never” or only “occasionally” did so. Respondents indicated that providing ready reference services and point-of-need instruction to patrons has been difficult because many patrons have no background or basic knowledge of the Internet. Although health sciences reference staff appreciated the extent of user interest in the Internet, librarians did not seem to have a clear vision of precisely how patrons were using resources and whether these sources were reliable. Comments indicated that patrons had misconceptions or false expectations that the Internet was “quick,” “easy,” “totally free,” or “comprehensive.” Since January 1994, patrons’ use and understanding of the Internet have improved considerably. Reference staff and patrons have continued to work collaboratively in exploring and evaluating relevant sites and services.

An emerging goal of many academic health sciences libraries is the development of a solid educational foundation through regular end-user Internet classes. Some form of end-user Internet training was provided by 37% of libraries surveyed. Results from one survey question indicated that 55% of academic health sciences libraries planned to teach end-user Internet classes by January 1995. Libraries are developing specialized courses for patrons on subject-specific Internet resources and sites as well as Netiquette, identifying and locating resources, evaluating the reliability and validity of sources, and using hardware and software applications. Libraries also have facilitated effective Internet use by designating certain reference staff members as “Internet librarians,” sponsoring patron user groups, or providing a forum in which patrons and librarians can work together to identify and evaluate the role of information.

**OBSTACLES TO INTERNET USE**

Obstacles to Internet usage and its integration into departmental activities included lack of time available to explore and become familiar with resources, unreliability of information, and fear. Surveyed librarians reported having relatively convenient Internet access, but when asked to comment on major disadvantages of Internet use, librarians generally cited time factors. Librarians did not agree that the Internet saves time. Ninety-four percent of respondents reported that time was “to some extent” an obstacle to Internet use.

Another obstacle to Internet use was a lack of familiarity with available resources. Comments revealed difficulty knowing what was available on the Internet, especially when access modes changed, databases seemed to “disappear,” software limitations prohibited use, and mastering new resources proved cumbersome. In open-ended questions, twenty-seven librarians commented that resources were “unreliable,” “disorganized,” and “hard to locate.” With the emergence of services such as Mosaic, access has been standardized and familiarity with resources has improved considerably. There is no indication, however, that lack of time has become significantly less of an obstacle over the past year.

Survey comments suggested that many reference staff have experienced the classic symptoms of “technostress” and “cyberphobia”: performance anxiety, information overload, role conflict, and organizational factors such as a lack of time [6-10]. Ten percent of surveyed librarians reported fear and anxiety as “serious obstacles” to Internet use, while another 41% reported that fear was “somewhat” of an obstacle. On the other hand, 49% of responding librarians reported that fear and anxiety were not obstacles to Internet use. As primary users of emerging technologies, librarians have been involved in the processes that ease concerns and lead to the adaptation and integration of tools and resources. As librarians gain experience and expertise, their use of new tools and resources becomes more routine.

**CONCLUSIONS AND IMPLICATIONS**

The Internet has been integrated into the daily routine of reference departments as a means of increasing communication and the sharing of information among colleagues. To further facilitate the practical, daily application of the Internet, an emerging goal of libraries is to provide quality filtering of information made available to patrons. As new tools, sources and sites are made available, librarians continue to explore and use them. One respondent librarian summed up the situation succinctly when she stated that the Internet “pushes boundaries and encourages the development of new tools, resources and services.” As the Internet continues to change and influence how information is stored and processed, librarians will continue to find ways to use this new technology.

Results of the January 1994 survey provide a sometimes inconsistent but not surprising snapshot of Internet usage within academic health sciences library reference departments. Informal feedback indicates that, although the percentages reflected in the survey may have changed considerably in the past year, librarians’ perceptions concerning the use and value of the Internet have remained relatively constant.

Survey results verified the importance of several issues related to the practical application of Internet tools and resources within the library setting. These factors included the perceived difficulty or ease of
using a variety of interfaces, the ever-changing environment of the Internet, and the time commitment required to become familiar with tools and resources. The survey also indicated which Internet tools and resources have been used most heavily and how the Internet has affected librarians' work practices. However, it remains to be established whether patrons' or librarians' use of the Internet has significantly helped them meet their information needs. Additional investigation into this and other issues related to the use and impact of the Internet is required.

REFERENCES


Received January 1995; accepted March 1995

Online SERHOLD updating for the Pacific Northwest*


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The Pacific Northwest was the first National Network of Libraries of Medicine (NN/LM) region to update SERHOLD data entirely through the Online SERHOLD Updating System, developed by the Serial Records Section at the National Library of Medicine (NLM). This article describes the early experiences of the NN/LM Pacific Northwest Region (PNR), also called the Regional Medical Library (RML), in using the online system. The current procedure is delineated, and cost and time statistics are provided.

BACKGROUND

The NN/LM PNR was one of the two beta testers of the Online SERHOLD Updating System in the summer of 1993. The testing process provided an opportunity to become familiar with the ease, speed, and accuracy of the system. One time trial showed that a competent computer user at least somewhat knowledgeable about serials could make up to 120 SERHOLD changes per hour, given the SERLINE unique identifiers (UIs) for the titles to be updated.

Among the five states in the region, one system was updating with OCLC Online Computer Library Center, one with the Western Library Network (WLN), and three with a PC-file program developed at the RML in the mid-1980s. The RML had paid a modest amount (a total of $4,500.00 was divided among the five states based on number of SERHOLD titles) to one library in each state to take lead responsibility for preparing data within that state. With an estimated 12,000 SERHOLD changes per year region-wide, direct entry into SERHOLD appeared to offer a considerable cost savings, especially if university students (a low-cost labor pool) could do the updating. Not only did the system appear to be cost-effective, but also the built-in checks and error messages that were apparent during the beta test suggested that

* This program is supported by NLM Contract no. NO1-LM-1-3506.