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## The Impact of Digital Reference on Librarians and library Users

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## The Impact of Digital Reference on Librarians and library Users

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Libraries in universities embrace a variety of digital options, as we described in our article in July ONLINE, "The Digital Reference World of Academic Libraries" [1]. Rarely do they replace one reference option when another appears-mediated online searching was added in the 1970s to coexist with print, CD-ROM and locally loaded databases were added in the 1980s end-user online searching and the World Wide Web became popular in the early 1990s. Today, all these options together form the modern reference unit. Librarians move agilely from one to the other to find the best resource and searching features for every patron and each question. Not only do new technologies join the older ones on a regular basis, but new software or new editions mean a continual learning process and constant change.

All of this change makes for a dynamic and exciting environment for reference librarians and for patrons [2]. One librarian told us:

The advent of electronic reference service has greatly added to the challenge of the job by multiplying the potential avenues of research. It has simultaneously increased the chances for the successful resolution of many reference questions and the demands these resources place on the librarians skills. I have been a professional reference librarian for 17 years and would have become bored with the work if electronics had not revolutionized it.

Excitement can be a double-edged sword, however. I suspect this university librarian is not alone when she says all of the changes are "exciting, but we're wearing out..."

University reference librarians report a variety of effects, both positive and negative, from the rapid and widespread adoption of electronic media during the last decades. The process of change did not just begin in the last few years--in 1991 we surveyed these same librarians to learn their reactions to change at that time [3]. However, this decade of the Internet has seen a tremendous escalation in electronic options and use, especially since the mid-1990s.

We've grouped the changes reported by the librarians from 68 academic research libraries who responded to our survey into three main areas:

- 1) Attitudes
- 2) Instruction
- 3) Workload and the workplace environment

### CHANGES IN ATTITUDES

Expectations and attitudes toward the research process have changed for both librarians and users. Heightened expectations from students and, to a lesser degree, from faculty is noticed by many librarians. Partly because of media hype about the wonders of the Internet and the ubiquity of the World Wide Web, students expect to be able to answer every question and do every research project online. Good reference service enhances these expectations, while adding a dose of reality as well. Access to good secondary sources with as much full text as possible is clearly important to help meet these heightened expectations. One librarian commented:

The biggest change is increased user expectations. More and more users expect to be able to find everything online, full text.

Technology lets us do much more, but it also increases expectations about what we can do.

Another observed:

Students don't ask, "How can I find information on subject x?" They ask, "What database do I search to find information on subject x?" After they have done their search, then most of them seem to need to learn how to find out if our library holds the material.

The users are not the only ones with increased expectations or changes in attitudes. Reference librarians told us repeatedly that they see a direct correlation between the proliferation of electronic reference sources and their own increased satisfaction with their jobs. These comments from opposite ends of North America are typical:

I think the new technologies help improve reference service immeasurably. I would never want to go back to the old days of card catalogues or even of microcatalogues.

It's more fun to go out to the desk now--we can find so much with the little bits and pieces patrons provide us. I don't miss the big red Library of Congress Subject Headings volume a bit. I feel liberated with the ability to do keyword Boolean searching, for example. A huge improvement!

Change does have its negative side as well. Several librarians expressed feelings of being overwhelmed by all the constant changes.

The major drawback is mostly psychological. Reference staff find it nearly impossible to master the tools, and some users are more intimidated by the technology than print-based sources. The primary hindrance to reference service here is budgetary--not enough staff to handle the demand for human consultation.

And, perhaps inspired by the winter Olympics, one librarian in the Northeast said:

Keeping up with the changes is like being in a luge race--you can't always see where you're going, but you're going very very fast and leaning the wrong way could be a costly mistake.

#### CHANGES IN INSTRUCTION

As these comments suggest, one major impact of electronic services is the growing need for user instruction. In our 1991 survey, several librarians predicted the end of library instruction, as they saw new more user-friendly services emerging and the computer skills of students increasing. By 1997, almost all respondents admitted the need for more instruction--and more intense instruction.

Heightened (and sometimes unrealistic) user expectations point to the need for refocusing on instruction by the library staff. Instruction must have several aspects, including critical examination of the accuracy and reliability of Web content, search strategies for Boolean logic and relevance ranking systems, and the ability to deal effectively with a variety of interfaces and systems. As one librarian said, much of this is because:

...our electronic databases are becoming more and more sophisticated (as we all know!) and more numerous. I find we spend much more time proctoring students in database use and our bibliographic instruction programs require a more thorough tutelage on search strategies and information structure.

Students with good computer skills still need help with database choice, the specifics of various systems, and synthesis of results, since much more information can be retrieved in much less time. One librarian mentioned a subtle change:

We now assist users in a different light. They can search the various databases but they need the assistance of a librarian to help them synthesize their information. Users also need assistance in using the various databases because the search protocol is not universal.

Another reported that:

Users are more adept at electronic searching, software is more user-friendly there are many more products, which yields many more end-users who need less and less instruction, but now need to be guided to the appropriate sources for their needs.

Sometimes librarians have to start with the basics, as this librarian described:

There are multiple access points to information that is packaged in different ways. Users, too, know little about how to manipulate access to resources effectively. It has become much more difficult to publicize what resources are available because access changes from year to year. Older faculty and grad students pay little attention to these changes, new faculty and students do, but often can't make heads or tails of what's available and how to use it.

Part of the problem is that there are still many students with substandard computer skills. Instruction for some patrons has to begin with how to use a computer, before the more advanced aspects of search strategy can be tackled, as this librarian reported:

The job of reference staff has become much more computer-involved with more need for creative thinking (for good search results) and problem-solving (for when the computer "misbehaves"). There seems to be more need for patience as users, who proclaim themselves "computer illiterate," need to learn how to use a mouse, find the asterisk and dollar sign keys, type accurately, think as quickly as we do of where to truncate, decide on synonyms, etc.

Another librarian reported increased "demands to instruct users at all skill levels in things like how to format a diskette, how to mark and print citations, etc., etc. (how to respond to error messages, printer malfunctions... and on)."

This need to instruct at many different levels is a challenge, as one librarian summarized:

There is a recognized need to instruct users in use of the Web and Web-related tools and searching, as well as the need to instill in users critical judgment toward electronic resources and an awareness that the library provides (at a cost) value-added resources. But we also have difficulty adding this to what we are already doing in instructional programs. We are in a transitional time, with both old and new skills competing for limited instructional opportunities.

Remote access brings additional instructional challenges. Students sometimes don't know what they are accessing when their mental models of remote online searching say "Internet" to them, rather than "library." Reaching those remote users with appropriate and adequate instruction is an obligation many academic librarians feel.

Facing confusion is often the first place to start:

We have around 120 databases networked to about 500 public terminals on campus. Many can be reached remotely. The access is great, but our patrons are often overwhelmed and don't know where to start (even though we have the usual guides, etc.) We have also used Netscape as a front end for two years and many patrons think they're getting all this stuff "free" over the Web.

It is not clear yet exactly what the best approach to remote instruction will be. As one librarian stated, this means that "creative strategies for identifying and meeting the information needs of remote users demand an increasing percentage of our time--and figuring out how to educate and answer the reference questions of the 'global village' is still a puzzle."

Sometimes remote instruction requires helping users with their own hardware and software setup. Since there are a multitude of set-up possibilities, this can stretch any librarian's skills. Several reported "increased demand to answer questions of remote users in regard to both content as well as technical issues, e.g., downloading and telecommunications configurations."

Where instruction takes place may be changing as well. Some librarians report opening "prominent" spaces for electronic instruction, others take the show on the road and "are spending more time in academic departments assisting faculty and staff." Several mentioned that they spend "less time behind the desk--more time roving through the computer area."

Almost all reference librarians who responded to our survey agree, "there has been an increase in instruction--with more librarians assuming the role of teacher/trainer." Contrary to some predictions a decade ago, more librarians are spending more time in instructional duties. This is just one effect on workload and workplace tasks engendered by the proliferation of digital resources.

#### CHANGES IN THE WORKLOAD AND WORKPLACE

Not surprisingly, many librarians report an increase in their workloads as more and different resources are added with no increase in professional staff. As a result, in many universities paraprofessional staff and student assistants are providing more reference service, particularly basic assistance in using electronic sources. Librarians are moving more toward specialized research and instruction service.

Reference interviews take longer, more time is spent with each individual, and librarians have to add more formal instructional sections to their already full days. While this can be invigorating, it can also be exhausting. One librarian told us that:

...like others, our statistics are down and our workload is up. We can do more, so each question takes longer as we explore and teach the varied resources. We have moved to Web-based databases and seem to have a new source or interface at least once a month. The rate of change is beginning to tell on both patrons and staff This fall we have 50-60 new OPAC Web stations with Web access to a variety of databases and the Web.

So we are busy with the new workload with the same staff

More time is spent with each question, because "enhanced searching capabilities plus the addition of material we never had access to makes it more difficult to give up on a question. We often go much further with a question before giving up."

This can have an adverse effect on usage statistics since:

We also find that our transaction statistics have declined as we spend more time with individuals-- precisely because of electronic resources. A focus of our reference work has been to improve and expand user aids in response to these needs. This includes both print and online formats.

Just as copy cataloging left the cataloging librarians with more challenging books that took longer to complete, more electronic end-user resources have left reference librarians with more challenging questions. Perhaps reference departments need to rethink how statistics are counted and focus on quality as well as quantity of service.

The possibilities for success are greater, but reference staff must know more than ever before. One librarian reminded us:

Reference librarians always had difficulty remembering most of the sources in the print environment. The problem has been magnified with the addition of more electronic resources, many of which employ different search strategies. And, the print sources haven't disappeared. We are required to know a lot about how data files are organized and to have knowledge of technical matters

such as, what patrons need to do to access library resources from their homes and offices. Of course, we've expanded library instruction to include sections on electronic resources and the Internet. While a lot of information is easier to locate and more up-to-date, our workloads have actually increased because of the amount of instruction that has to be done and other factors.

Librarians have to cope with pressures of increased workload and also with the pressures of keeping one step ahead of patrons as new options are added frequently. This can be stressful, as this librarian reported:

The rapid proliferation and changing nature of electronic resources is creating an enormous amount of stress for reference librarians and a crisis for professional and staff development. Librarians are really struggling to keep up with developments and stay ahead of users in knowledge of resources and the skills to use them.

A librarian noted, often that means continuing education to learn new things because "the electronic nature of our Reference Department is much more complex and technological than in the past. The need for reference librarians to have technical computer skills is growing to help users cope with problems involving networking software, Web browsers, printing and downloading, etc."

A few librarians consider that the changes in tasks and focus adversely affect the profession, and one commented that "reference is less a skill as it has become a trade. The reference librarian more and more is technical support rather than a resource."

Negative or positive, almost all would agree that there is "increased staff time spent on troubleshooting (e.g., printer problems, locking workstations, etc.)." The changes in staffing patterns can have an adverse effect as well:

Reference staff are more challenged than ever by the profusion of reference sources delivered through myriad means (print, standalone, and networked CD-ROMs, online systems, and Web-based catalogs and other reference tools) most of which have unique system interfaces. At the same time, reference departments are not gaining in staff or are moving more toward non-professional and often student assistance. The part-time aspect of this staffing pattern makes the consistent maintenance of this knowledgebase very difficult.

## CONCLUSIONS

The nature of academic reference work and the environment of reference departments have changed profoundly in the last few years. More sources, more options for sources, higher patron expectations, and, of course, more reliance on new technologies creates an environment that never seems to rest. Reference departments are dynamic, exciting places, where even the definition of "place" is expanding as reference services reach out to remote users.

Much of this is possible due to the dedication and commitment of the reference staff. Often they are doing much more with less budget and smaller staffs by reorganizing priorities and sometimes, we suspect, operating on enthusiasm and adrenaline. Can reference librarians keep up this pace? Only time will tell.

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