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The impact of electronic reference on reference librarians

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Abstract:
The growth in library patron use of electronic reference options has resulted in a larger number of searches and the retrieval of a larger amount of information. This trend has impacted reference librarians in three basic areas: work environment, instruction of users and the basic nature of reference work. Work environment changes include increased reference-desk business and more time spent on manual tasks such as hardware troubleshooting.

Full Text:
In the March 1992 issue of ONLINE we reported the factual results of a survey of research libraries in the U.S. and Canada. Among the 96 libraries that responded (representing 81% of the members of the Association of Research Libraries), we found widespread use of a variety of electronic reference options. In these libraries, 97% offer online intermediary services, 96% offer CD-ROM for reference use, 45% offer end-user online searching, and, as of mid-1991, 37.5% make reference databases searchable via their OPACs, with an additional 48% planning to do so within the next two years.

The trend for additional and more diverse access is clear--only one library plans to drop any services in the next two years, while 60% plan to add one or more options. By the beginning of 1994 a vast majority of these libraries will be offering three or all four of these search options.

Beyond just the range of options offered is the tremendous growth in the number of patrons affected by new electronic options. The newest services to be added (CD-ROM and OPAC databases) are reaching thousands of users a week, while older online options may reach only hundreds per month or less.

The bottom line is not surprising: more electronic reference options are being added in libraries and are being used by many more library patrons, to conduct a greater number of searches, resulting in retrieval of a greater amount of information. All this is bound to have an impact on almost every aspect of the library, including budgets, administration, collection development, and technical services, as well as reference services.

INTERVIEWS WITH REFERENCE LIBRARIANS

To go beyond the factual summary and to find out how these changes are affecting reference staff, we conducted in-depth interviews with librarians from several academic libraries. The libraries we selected to talk with do not have the most electronic reference options, nor do they have the least. They do not have multimillion dollar grants for automation. Most are making do with existing staff (or rearranging staff); most are grappling with decreasing or status-quo budgets, not budget increases. Changes have not always gone smoothly and they expect more challenges ahead. They are typical ARL academic libraries that provide innovative electronic reference services because they know their patrons will benefit from it, and because they are excited by the potential of such resources.

We selected academic libraries from across the United States and Canada who indicated on our questionnaire that they would be willing to be interviewed and who kept some statistics on database use. They provided us with information in writing and in personal or telephone interviews about the impact of electronic reference on their libraries. We were especially interested in their impressions and opinions of how things have changed (or not changed) in their jobs as electronic options are added.

We have separated their impressions into three main areas:

1) work environment
2) formal instruction of users
3) the fundamental nature of reference work

WORK ENVIRONMENT

Increased Business At The Reference Desk: The first thing that almost every librarian we talked to said was the reference area has become busier. Most of this is due to the introduction of one technology, CD-ROM, and the continued increased in the number and variety of CD-ROM products.

CD-ROM can make reference areas busier for several reasons. One reason is that since CD-ROM is relatively new to most users, they think (or the librarians think) they require more assistance than with print products. One librarian commented that CD-ROM "requires more instruction [simply] because it is different." Another spends "a lot more time answering CD-ROM questions as opposed to paper index questions, [because] I spend more time explaining things pertaining to CD-ROM such as Boolean, what is an index, etc. I assume people have used paper indexes, but perhaps not CD-ROM."

More Learning Time For Librarians: Since CD-ROM may also be relatively new to librarians, it takes more of their time to learn the ins and outs of a variety of software products. We heard many comments similar to: "With the introduction of CD-ROM I have to train myself a lot more." "Personally, I find it hard to keep up with the different CD-ROM software and software changes." It is difficult to keep up with CD-ROM software changes/new products—especially for those not used as much. We have to learn with the patrons.

Most of this seems to be done while at the reference desk. "I often learn new features of software as I'm teaching it." "I'm intrigued with the possibilities of all the new technologies coming into the library, and I have a lot to learn, and whenever I teach I am also teaching myself. I see teaching more as a friendly helper-type activity." No one mentioned attending training classes or having a staff training area.

Another way reference librarians seem to be spending more time is on understanding the patron's information needs: "CD-ROM has increased my workload, because instead of paper I send them to CD-ROM. Now it is more important to find out what they need—I don't want to overwhelm students." "We are guiding/assisting the students more, because the technology has forced us to do that."

It is interesting that CD-ROM databases seem to be fostering better reference service that is more responsive to users' research needs. Ingrained bad habits by reference librarians are being discarded, as one reference librarian explained: "I tend to spend more time helping people with the CD-ROMs, I think because it is technology-based, but actually people using paper sources need more help because they have less success. Now I see that I should have spent much more time with the students at the paper index, while now, I think most of us take the time at the CD-ROM to see what the results of students' searches are."

Time For Manual Tasks: More time may be spent on manual tasks such as paper changing and hardware trouble-shooting. Although not all agree, a common reaction is "with the introduction of CD-ROMs, librarians had to become technicians more than they liked." CD-ROM workstations require a certain amount of physical care and feeding and interaction with technical people in other parts of the library: "Every morning we come in and have to check to make sure [the CD-ROMs] work, check paper, ink. If something breaks down it takes at least half a day to get Systems to fix it." In one library that reported "more manual labor (ink, paper, basic computer literacy) that is non-professional work," a second person was added to the reference desk and students were hired to help at the CD-ROM workstations.

For some librarians these extra chores are "no problem" or just "an irritant"; for others they were mentioned as a major interruption to reference duties. The difference in perception appears to be both a matter of personality and of administrative policy. If extra help is provided (such as student assistants to maintain the workstations) the additional chores are tolerable.

Misperceptions: Several commented that the load of reference questions asked at reference desks has increased dramatically. Sometimes the perception of the increase may be greater than the actual numbers of support. At one library reference desk statistics collected before and after the introduction of CD-ROM showed that librarians are receiving on the average 1.5 more reference questions per hour since CD-ROM. Several librarians guessed the increase to be much larger.

A librarian in another library explained this phenomenon: "Although the perception may have been that we spend more time helping people with the CD-ROMs (because we are more conscious about working with the CD-ROMs), helping someone with a printed index certainly is not over in 30 seconds either."

There are other reasons why the electronic reference areas are busier than in the old-fashioned print era, even if the actual numbers of questions asked has increased only slightly. "You can only help one person at a time with CD-ROM, while with print indexes, you can get several patrons started." "While in the past, we could get a person started on a paper index, explaining to them how to use it, telling them that if they had problems to bring the volume to the reference desk to get more help—now we can't do that. We are standing at the machine helping patrons." Each question may be taking longer even if there are not many more questions.

Not Always Busier: Not everyone agrees that CD-ROM has made reference busier. One librarian flat out stated "I don't think CD-ROMs really change the workload," perhaps because "patrons like to do their own searching, they like to have control." Another, from a private technical university whose "users are usually quite sophisticated computer/database users," says that "CD-ROM has had little impact . . . our users don't need too much hand-holding. . . . Most prefer searching on their own."

At the other end of the spectrum, reference may not be busier with CD-ROM if the librarians don't let patrons know about their
They are trying out new instructional techniques. "Library instruction is easier because it is possible to adjust to people's needs and
became apparent that most library users are poor database searchers. This was one of the reasons for instituting a bibliographic
thus my own teaching has improved." Many mentioned a renewed interest in bibliographic instruction, in at least one case because "it
are being reexamined. "Probably caused by the technology, because it is new, a lot of people talk about their teaching, share ideas,
Institution Is Improving: Most agreed that their instruction has improved and has gotten more interesting. Again, old ingrained habits
and CD-ROM take up most of the time." Non-digital, such as "print" copies of expensive print indexes now available on CD-ROM,
Some libraries are removing paper indexes to make more room for CD-ROM workstations and OPAC terminals. They are moving
paper products back to the stacks, canceling second copies of expensive print indexes now available on CD-ROM, or even canceling
print copies completely. More than one librarian cautioned, however, that "printed indexes could only be removed from reference
areas if enough workstations were there." "We shouldn't move printed indexes out of the reference area unless we have enough
workstations." Typically there are more OPAC terminals in more locations, so "putting more and more databases on OPAC is the ways of the future, especially because we have so many more OPAC than CD-ROM workstations." When
a CD-ROM database is available on a LAN, greater used and fewer questions result.

Impact Of OPAC Databases: Databases loaded on OPACs are having less of an impact on reference workloads. Many librarians
agreed that there have been only a "small number of questions at the reference desk pertaining to [OPAC databases]." Some believe
that this must signify that "not that many people are using [the locally mounted database] because they don't know about it" or that
"people didn't know what it was." A few librarians attribute this to what they perceive as a lack of adventure on the part of patrons.
"People don't try out new things" and "most people are not willing to explore."

These impressions are at odds with the statistics on OPAC database use that are automatically recorded by OPAC software. In one
library, statistics showed us that the UnCover database available on their CARL online system is searched between 6,000 and 8,000
times per month. Yet several librarians thought the lack of impact at reference must be because they "probably are not used much"
and the number of "reference questions pertaining to UnCover is small because people don't know what UnCover means on the
menu and don't use it much." UnCover was being used much more than even the CD-ROM databases, yet the impact on reference
librarians was much less.

A single consistent and simple user interface is probably a major reason for this phenomena. The databases on the OPAC are "not
that different from CD-ROM in terms of information, but in terms of searching; people know more about searching the online catalog."
"There are few questions about local online use because of its straightforward to use" and people don't "have any trouble" using it.
"Local online is used a lot because people know the software from the online catalog."

Physical Environment: Another workplace impact from electronic reference is the impact on the physical space of these reference
areas. The libraries we interviewed varied greatly in how they physically organize reference, from a highly centralized main library
approach, to highly decentralized branch or departmental libraries. CD-ROM workstations and OPAC terminals may be clustered,
spread out, or both. Several CD products are available on local area networks (LANs) in some libraries; others provide access to just
one user at a time for each product. CD-ROM clusters near the reference desk are popular, and clearly "the location of CD-ROMs
impacts reference service."

The need for more CD-ROM workstations was mentioned by librarians with all types of configurations. "The biggest drawback for CD-
ROMs is not enough workstations." Typically there are more OPAC terminals in more locations, so "putting more and more
databases on OPAC is the ways of the future, especially because we have so many more OPAC than CD-ROM workstations." When
a CD-ROM database is available on a LAN, greater used and fewer questions result.

The wider availability of networking with OPACs makes them more attractive because the databases are available in more locations.
(Remote use may be another reason there are fewer questions to reference librarians.) "Many students ask about remote access and
how they can get into this and that when they are exploring the system at their computer. So I think locally mounted databases on
OPAC are a great benefit." "It would be ideal if all users accessing [the OPAC] from home could access CD-ROM databases from
home." This demand is making many librarians thin about what to do in the future, and many mentioned OPAC databases as the
ways they hope to go. Some see the databases on OPAC decreasing the need for more CD-ROMs; others see that "in the future we
need to include other databases on the OPAC, get more CD-ROMs, and get a network."

Some libraries are removing paper indexes to make more room for CD-ROM workstations and OPAC terminals. They are moving
paper products back to the stacks, canceling second copies of expensive print indexes now available on CD-ROM, or even canceling
print copies completely. More than one librarian cautioned, however, that "printed indexes could only be removed from reference
areas if enough workstations were there." "We shouldn't move printed indexes out of the reference area unless we have enough
workstations. I would be in favor of canceling printed indexes to get the CD-ROM version."

LIBRARY INSTRUCTION

Both formal and informal library instruction traditionally have been important parts of reference services in academic research
libraries. Formal "bibliographic" instruction may take place as a part of regular classes in academic departments, as full term credit
classes in library use taught by the librarians, or as short non-credit sessions in the library. Informal instruction, also called "point-of-
use" instruction, takes place as the need arises at the reference area and was discussed in the section above about the regular
reference workload.

Almost all the librarians we talked to agreed that electronic sources have had an impact on their formal library instruction programs
and are, indeed, now a large part of library instruction. Typical comments include: we now "spend most of the class time on CD-
ROM" and CD-ROM has definite impact on library instruction--the largest percentage of class time is spent on teaching used of CD-
ROMs--although not everything is on CD-ROM they are an effective way to start." "In library instruction, print is mentioned, but online
and CD-ROM take up most of the time."

Instruction Is Improving: Most agreed that their instruction has improved and has gotten more interesting. Again, old ingrained habits
are being reexamined. "Probably caused by the technology, because it is new, a lot of people talk about their teaching, share ideas,
thus my own teaching has improved." Many mentioned a renewed interest in bibliographic instruction, in at least one case because "it
became apparent that most library users are poor database searchers. This was one of the reasons for instituting a bibliographic
instruction program."

They are trying out new instructional techniques. "Library instruction is easier because it is possible to adjust to people's needs and
be more lively; we do demonstrations of databases in class and can respond directly to students' questions." Instruction is much more individualized, you can tailor your examples more directly to students' needs; try to interact with class, be more responsive, teach search strategy and software features, do demonstrating." No more show-and-tell from a truckload of books--classes have become more interactive. We have students work in pairs where they actually look at the thesaurus, write out their search statement and then go to the workstation and try out the search."

New techniques with CD-ROM have made library instruction more effective for a wide range of students. "I do hands-on and give them worksheets. The guided method works nicely, especially with the many foreign students I work with--they don't have many problems. I try to keep a conversation going and make it more interactive."

Content of Instruction: The content of effective instruction was considered by many librarians we talked to. Several saw that "users have the most problems with structuring their search" or that the "problems are conceptual, not with software" though "the students are more worried about software." Most agreed that the best instruction "teaches mostly concepts," but that a "balance between conceptual and software features" is the best. "We stress the conceptual, because that's where students have the most difficulties, but also teach software use." It isn't helpful to teach every software feature, though, because "I think people don't need those advanced features. If they know a basic Boolean AND, the other things we can tell them as they need them." "I first teach the basic features of the software and the use of the equipment, then I teach them concepts, Boolean, and thinking creatively about terms."

Students often have less trouble and less hesitancy about database searching than librarians expect. One library was debating "whether we should charge people if they wanted us to do a search for them because they were afraid to touch the machines. This turned out to be a non-existent problem." "People turned out to be less computer-phobic than we first had thought."

Training Facilities: These effective teaching techniques rely on having adequate training facilities. "While we used to take a number of books into the classroom, now I hardly ever do that. Now almost everything I do involves the computer and we are beginning to set up a classroom-kind of arrangement for the CD-ROM and the OPAC terminals. We will be able to do more and more hands-on instruction, where you can immediately find out what the problems are and the students are so much more involved. The more strategies we can devise for hands-on, the better off we are." "CD-ROMs have livened up instruction. I started off purely skill-oriented (hit this key, then that key), then went to teaching conceptual things, but what people really need is hands-on. I make up a lot of exercise so they can practice what they learned in class."

Without adequate facilities, instruction for electronic sources may not be effective. One librarian commented that "CD-ROMs have invalidated library instruction, unless you have a computer lab for hands-on." A few libraries now rely less on formal instruction and emphasize the informal. We don't have an extensive instructional program, mostly do point-of-use instruction." "We do more one-on-one instruction, we offer a minimum of printed and verbal instructions. With things changing so fast, what's the point of wasting time teaching people how to do this and that step-by-step."

THE CHANGING NATURE OF

REFERENCE WORK

The widespread addition of electronic resources to reference services is making some changes to the very nature of the reference librarian's job. Beyond just a busier reference area and improvements in instruction, most librarians agree some fundamental changes are taking place.

Changes In Users' Attitudes: One change is in the attitude library users have about the library and about the research process. They are coming more often to the library and going away more satisfied. "Students are more readily coming to the library to do research, because it's easier to do." "There is now more work at the reference desk, but it is minor compared to the incredible satisfaction of users." "CD-ROMs have made research more fun." "CD-ROM has a kind of empowering result for people in that they can do their own searching and not depend on librarians."

End-user options fit right into the new generation's expectations and experiences. "The immediacy of information is almost addictive." "People are looking for new ways for getting information--CD-ROM fits in." "Instant gratification is characteristic of our late 20th century culture--the expectations of user are going up."

Users are making more demands on librarians, providing more challenges to reference work and often leading to enhanced services. "Patrons are becoming more demanding, they want more and different CD-ROM databases." "Students are more aware of the information available out there. There is an increased demand for online searches; demands of students are much greater and more specific. They are more sophisticated--they will often phrase their question in search strategy form."

There are increased opportunities for direct support from the users as happened in this library: "It was the graduate student association that first bought a computer for the library so that the library could offer online searching. We now do on-demand ready reference searching online for questions worth less than $10,000."

Even students who do not make direct demands or are hesitant library users are being affected by end-user electronic resources. "I think it helps foreign language speakers learn to do their own investigations more readily than may be being embarrassed or feeling that they might lose face with another human being, an authority figure like a reference librarian. Some people from other cultures would be more reticent to approach a reference librarian to find out how to search. If they learn the rudiments of the CD-ROMs, they can sit there and in a way it responds to them, it teaches them."
Need For Full Text: Improved research skills and the tendency to make more demands are leading to increased need for full text in many libraries. The inadequacies of periodical collections are emphasized with widespread searching of electronic bibliographic databases much more than with printed index searching.

"CD-ROMs are making us look at acquisitions of journals and at our document delivery. With printed indexes, users don't have the expectations that things are immediately available but because of the speed of electronics, expectations to get/ have are greater. That requires us to look at how quickly we should be able to deliver requested information." "There is more emphasis on document delivery--delivery of information into people's hands or onto their computer screens." "We have made great strides in access to the literature but we have not been so good on the document delivery side. Even as we have ways to get the article, it is still too expensive. That makes researchers frustrated because they see better literature is out there but are not able to get to it."

Some librarians have specific solutions to the document delivery problem. "We should subscribe to 75% of the journals indexed on CD-ROM because a large number of students cannot afford the time or money to order via ILL." "There is a definite move to giving people the information they want rather than sending them to a different collection, building, or the document delivery unit. This includes giving users the full text of an article right at the reference desk by pulling it from a full-text database on BRS, DIALOG, etc."

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Balance Is Needed: There is some concern that staff and patrons alike are too enamored of the new tools, at the expense of traditional (and sometimes better) reference works. "Because librarians are spending so much time with CD-ROMs, I think at times they forget about other sources which may be equally or better suited for their needs." "We tend to rely on CD-ROM more than we should, we hardly ever refer patrons to print." "CD-ROM should not cause us to neglect printed indexes. We should avoid duplication but both types are necessary and complement each other."

Some librarians are concerned that users are not critical enough when it comes to electronic resources. "Students think that whatever they get is good, just because it came out of a computer," and "students have difficulty in determining appropriate indexes on the CD-ROM." Most would rather wait than use printed sources, even if the print may be more appropriate. "CD-ROMs have changed reference drastically, but, although use of CD-ROMs (especially Boolean capabilities) make it so much easier for people to find information, I get very frustrated when people come in and find out that all the CD-ROMs are busy but they don't think about using a paper index."

But several librarians emphasized that the "basic concepts of reference service have not changed; the format of the sources hasn," and the "basic strategy for doing research has not changed." Also, "how we interact with the patrons hasn't really changed. We try to help the individual at the desk and the group in classes, where we emphasize that they should come back to the desk for more help."

REFERENCE WORK IS REVITALIZED

Perhaps the most important impact of electronic reference is the revitalization of reference work. "CD-ROM makes reference more fun." "CD-ROMs make reference work easier; you can see that people are real satisfied." "It's easier and also pleasant because there are so many new things to learn. Everybody likes it, so the whole reference experience is very pleasant."

Many comments such as these show the renewed enthusiasm for their jobs that many reference librarians expressed to us. No one summed it up better than the librarian who said: "I have been a librarian for more than 20 years and now, more than ever, it is really fun and exciting to come to work in the morning."

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