Libraries Meet the World Wide Web: The Collaborative Digital Reference Service

by Diane Nester Kresh, Director for Public Service Collections, Library of Congress

Imagine a reference service where a patron in a public library in the United Kingdom can query an online system and get reference help from a librarian at a public library in southern California... all within a matter of hours... sound hard to believe? It is exactly what is possible with the Collaborative Digital Reference Service (CDRS).

What is CDRS?
CDRS provides professional reference service to researchers anytime, anywhere, through an international, online network of libraries and related institutions. Launched by the Library of Congress in June 2000, CDRS now includes more than 200 member libraries—academic, public, special, and national—worldwide and that number is growing weekly. The collaboration has been very beneficial in that each library brings its professional experience, knowledge of user behavior and needs, and subject expertise to bear on the project.

CDRS uses technology to provide the best answers in the best context, by taking advantage not only of the millions of Internet resources but also of the many more millions of resources that are not online and that are held by libraries around the world. CDRS supports libraries by providing them additional choices for the services they offer their patrons. Libraries can more ably assist their patrons by sending questions that are best answered by the expert staff and collections of CDRS member institutions from around the world.

An advisory board, comprised of representatives from CDRS member institutions, meets to discuss policy and future directions of the program. Business meetings with member representatives are also regularly held to get feedback, report on and solve work flow problems, discuss training and performance measures, and build esprit de corps.

The CDRS homepage posts general information and news links, information for members and project milestones. An electronic mailing list allows members to communicate frequently with one another, get technical questions addressed, and comment on the efficacy of the network.

The World at Your Fingertips
At no other time in history has the emergence of technology affected so significantly the core mission of a library. These technological advances have created new service opportunities for libraries and library patrons. For information to have relevance, it must be up-to-date and receive the hands-on touch of the skilled reference librarian to provide context and added value. Through the CDRS network, LC and its partner libraries can serve researchers everywhere and, in so doing, bring control, context, greater choice, and timeliness to the world of information.

CDRS includes two component parts: submission of a question and answer, and archiving the answer for future use. The workflow looks like this: An end user requests information through a CDRS member institution. The member institution sends the query to the online Request Manager (RM) software for processing and assigning. The RM searches a database of CDRS member institution profiles looking for the institution best suited to answer the question. Once a match on an institution has been made, the query is sent to that institution for answering. After the query has been answered, it is routed back to the original CDRS requesting library via the RM to allow for closing out the case and completing other administrative tasks.
Current Issues

The library profile is the core of the routing and assignment activity, and each institution can “code” itself as broadly or as narrowly as it chooses. Library profiles contain basic information about the library, including hours of service (and time zones), collection strengths, staff strengths, education levels served, languages covered, geographic location of users served, whether there are special services provided and what they are—as many as 28 data fields. This information is captured in a table, where it is used by the online RM to sort, assign, and track incoming questions and to deliver answers to the end user. Further, the profile tool is flexible enough to allow for regular updating to reflect staffing changes or special circumstances that would affect the automatic routing by the RM. For example, if the astronomy specialist is on sabbatical for several months and no back-up is available, the library might choose to remove that subject strength from its profile until the staff member returns.

Answers are edited and stored in a separately searchable knowledge base of information. The knowledge base, to be populated with the diverse and authentic information provided by CDRS librarians, will ultimately serve as a front end to CDRS, designed to “catch” and answer incoming questions if there is a ready match. If there is no match on the knowledge base, the question will be routed through the RM and assigned to a library.

CDRS Implementation

The implementation process began by defining a concept of operations by which CDRS would work on behalf of its members. For example, the advisory board agreed that CDRS is a membership model; CDRS builds its infrastructure once and shares that cost among its members so all can afford to use the service; CDRS is open and members need only Internet access, a browser, and e-mail to use it; quality is considered number one and policies, certification, and Service Level Agreements (SLAs) are enforced to ensure that the brand lives up to the market’s expectations; the technology platform is built to serve the membership as a whole; and, finally, CDRS is an international service that does not give preferences to certain jurisdictions or members.

We also initiated a series of pilots to test the technical solutions. Pilot 1 had two principal goals: to test the effectiveness of the library profiles and to test a web form for submitting questions. Results indicated that more standardization of the data elements was needed, for example, agreement on use of a standardized tool—such as a truncated version of the Library of Congress Classification schedule—to describe a library’s subject strengths. All of the libraries contributed edited sample questions and answers that were sent through the system according to a scripted schedule.

In Pilot 2, we added more institutions worldwide, increased the number of questions asked of the system, revised the profile database, and began to experiment with software packages to serve as the Request Manager.

CDRS Accepts All Comers

There are no restrictions on the types of libraries that can participate. Size of a library or collection is not a factor in determining whether a library can become a member. The aforementioned Service Level Agreement defines the nature of the member library’s relationship to the CDRS and that agreement is codified in the library profiles. Many types of agreements are possible and are limited or expanded depending upon the strengths (e.g., subject) or limitations (e.g., staffing or hours of service) of the individual library. For example, a library may agree to ask and answer questions; only ask questions; ask or answer questions only during specified periods; serve as an editor for the knowledge base; or serve as the on-call library if the automatic Request Manager function is inoperable. In addition, many libraries have local collections that are unique to them. These local, specialized collections make a potent contribution to CDRS overall, filling special niches that larger research institutions may not be able to fill.

In addition to defining roles and responsibilities among the partner libraries, the SLAs will ultimately be used to determine what it will cost a library to be a member of CDRS. While the pilot is underway, CDRS is free. However, we have been examining a variety of funding options with the goal of being as flexible as possible, both to allow for the broadest participation among types of libraries and to ensure that no one library or group of libraries has to bear all of the costs of establishing and sustaining CDRS. To that end, we conducted a series of marketing surveys, both in person through interactive sessions and online, to develop potential cost models. These sessions provided valuable information to the planners, affirming support for a service through which credentialed experts provide high-quality information and affirming a willingness to pay for such a service.

The Value Proposition

We have encouraged maximum flexibility in developing the many component parts of CDRS. For a library to want to participate, CDRS has to be perceived to have value. Just as there are no “one size fits all” libraries, so too are there no “one size fits all” arrangements with CDRS. Libraries are structured and organized differently, they have different local audiences, and they have different policies and procedures for ensuring quality control. To be useful to a library, CDRS must fill an unmet need and offer something that the library does not already have, e.g., adequate staff, a subject strength, or a special collection unique to a participating library that the whole collaboration then has access to. When the participating library defines the terms of that value, that library will
have greater incentive to make the arrangement work, for itself and for CDRS. Our job is to create the tools; the library then decides for itself how to make the relationship work.

Where to Next?
Currently, libraries participating in CDRS connect with other libraries on behalf of patrons so that the libraries can conduct the reference interview before sending the question, define the parameters of the service, determine what works and what does not work, and create a service that is scalable and maximally responsive to user needs. From the beginning, however, we have envisioned that CDRS will become a service that is available directly to patrons, recognizing that many individuals never go to their local library but still need information. Over the next several months, we will work with our members as we begin to define the direct-to-patron interface. Eventually, we hope to build a service that provides one-stop shopping for reference and information.

In January 2001, the Online Computer Library Center (OCLC) and the Library of Congress, on behalf of CDRS member libraries, signed a cooperative agreement to guide CDRS through its next phase of development. OCLC will provide technical and development support to CDRS by building and maintaining a database of participating institution profiles that will route questions and answers through CDRS; building and maintaining a question-and-answer database system that will enable CDRS participants to catalog answers and store them in a searchable and browsable database; and providing administrative support for CDRS, including marketing the service, registering new members, and providing training and user support. Together, the Library of Congress and OCLC will develop a viable model for a self-sustaining digital reference service and promote CDRS in the library community.

We continually examine our technical solutions to ensure that we have the right ones to meet our mission, and that the tools we have created are easy for librarians to use. As we look to expand globally and become a true 24/7 service, there are many issues we must examine: language and literacy, service to local populations in their own language, acceptable Internet access and technical infrastructure support mechanisms for a worldwide constituency, cultural and political sensitivities, and e-commerce and trade agreements that may affect pricing models. The solutions to these issues will determine the long-term success of CDRS.

Current information about CDRS, including how to participate, can be found at <http://www.loc.gov/rr/cigiref/>.
CHAT REFERENCE: AN EXCITING NEW FACET OF DIGITAL REFERENCE SERVICES
by Jana Ronan, Interactive Reference Coordinator, George A. Smathers Libraries, University of Florida, Gainesville

I t’s 9:55 a.m. and time for me to log on for my 10 a.m. reference chat shift. I click on an icon on my computer’s desktop, the chat program opens, and at the prompt I enter my user ID and password. Once connected, I greet the librarian that I am relieving, David, using the chat program’s instant messaging feature. Shift transitions on our chat service are much like the transitions at the reference desk. We greet each other and talk about the questions that are being asked that day, to prepare the person coming on for duty. David tells me that he had a question from a student experiencing trouble connecting to FirstSearch. We discuss the intricacies of campus networking for a while, then David excuses himself and logs off the chat service. Now, any incoming questions will be routed to me. I close my office door, settle in my chair and wait for the questions to trickle in.

It’s Monday and I have a mountain of e-mail sitting in my inbox, so I decide to browse through them while I wait for users to log on and ask questions. I open my e-mail program and start reading messages, leaving the chat program running, but minimized. After a couple of minutes, a tone sounds and RefeXpress generates a window that opens on top of the e-mail that I am reading. The window tells me that a user named Steve G. has connected. Steve’s question is, “I’m trying to find Applied Physics Letters online. Can you help me?” I click on the button labeled “accept” and am assigned Steve’s chat session. After greeting Steve with a friendly, “Hello Steve. I’m Jana,” I click on the “information” button to see what I can find out about this user. Steve has a university e-mail address and is using Internet Explorer 5.5, but is he a student, a faculty member, or staff? Is he talking to me from a computer on campus or from somewhere else? With digital reference, you never know. “So, Steve,” I type in the chat window, “Do you know if Applied Physics Letters is a journal? Can you come into the library if I find that it’s not online?” Steve explains that he is a UF graduate student, temporarily located in Tennessee working on a research project and that he really needs online access to Applied Physics Letters. “Okay,” I respond. “Let me see what I can find. It might take a couple of minutes for me to find the answer.” After a rapid search of a couple of databases, I find that the journal is available online. “Steve. Good news.” I type into the chat. “You can get the journal online.” Using the web browser that is built into the chat software, I send (push) the Smathers Libraries’ home page to Steve so that he can see it on his computer screen. Confident that we are both looking at the same web page, I show him step-by-step how to find the journal on our website. I talked a user through this same procedure yesterday, on the telephone at the reference desk, but it is so much easier to explain the answer when you can control what the user sees on their computer screen. We spend another couple of minutes discussing how the local authentication works until it becomes clear that Steve has the information he needs. “Have I answered your questions?” I ask. “Yes, thank you,” types Steve. “Please come back if you need more help with anything.” Steve logs off. Satisfied, I return to reading my e-mail and wait for the next user to log on for help.

We welcome all kind of questions in our chat service, RefeXpress, at the University of Florida. And, as you might suspect, advice on tracking down e-resources is a fairly typical question. But the questions we get cover the gamut of subject areas, just as at the traditional reference desk. What all chat sessions have in common is that they are initiated by users who need help at the moment that they experience the trouble. Chat reference—or “real-time reference,” as it is also called—delivers immediate reference assistance via computers and synchronous communication software. This communication is in real time, so that librarians may talk to the user, determine what the user needs, and offer answers while connected with the user. But perhaps another definition would be helpful. The online dictionary Webopedia <http://www.webopedia.com/> defines chat as, “Real-time communication between two users via [a] computer. Once a chat has been initiated, either user can enter text by typing on the keyboard and the entered text will appear on the other user’s monitor.”

As late as 1999, only a handful of libraries were experimenting with delivering reference assistance via synchronous, real-time technology. These innovative services included the Internet Public Library’s Reference MOO, TalkBack at Temple University (ZBServer software), and an experiment with computer-based videoconferencing at UC-Irvine. For the most part, however, the audience for these early services was limited to astute computer users, as one was required to install and/or to learn specific software to reach librarians. Today there are a variety of web-based software programs or hosted services that are much more user friendly. These programs create an interface where users need only a web browser to connect, thus enlarging the potential audience to anyone with a computer.

It’s hard to count the number of academic libraries offering real-time reference services, because libraries are adding chat to their arsenal of outreach methodologies at such a rapid rate. However, an informal survey of library websites revealed that libraries are exploring chat reference
at various levels of commitment, depending upon their budgets and visions. The major factors that influence the level of investment an institution can make are software and hardware costs (including laptops for telecommuting librarians), staffing/hours issues, and training. Some libraries are offering experimental services that are open only a couple of hours a day and use inexpensive software, while others are committed to 24/7 service, delivered via sophisticated call center software from the corporate sector. The Alliance Library System in Illinois is an example of a 24/7 academic cooperative.

Would your users benefit from a chat service? As when planning any new public service, it is helpful to conduct a needs assessment to look at the type of Internet connectivity that your users have and when they are using library resources. Does your library serve undergraduate users, a population that uses chat frequently? (In September, the Internet and American Life initiative of the Pew Research Center [http://www.pewinternet.org/] reported that 41% of 12–17 year old students use instant messaging or chat to get help with schoolwork.) What hours do your users access your library website? When are they asking e-mail reference questions? If you see a substantial number of e-mail questions being posted at times when reference service is being offered at in-house service points, for example, you may have a base of remote users that would benefit from chat reference. A strong commitment to distance learning at your institution may be another reason to consider adding chat reference services.

When choosing software, there are a large number of chat software programs and services on the market to choose from. Choices range from inexpensive or free chat programs—such as AOL Instant Messenger, Yahoo! Chat, or ConferenceRoom—to the sophisticated, feature-rich call center software—e.g., NetAgent, eGain, and Live Person—used to deliver rapid customer and technical service on business websites. Libraries also have the option of installing the software on their own computer networks or having it hosted by a commercial vendor or by a free service such as Yahoo! Chat. Each approach has its associated challenges, including response time, maintenance issues, and control over the user interface (do you really want advertising on your chat reference page?). While expensive call center software may be out of reach for a smaller library’s budget, many libraries are banding together in consortia to purchase software and to collaboratively staff virtual reference desks. The Biblioteksvagten consortium of academic and public libraries in Denmark, using Live Person, is one example. Many libraries are purchasing hosted service from companies named LSSI or 24/7 Reference that offer use of NetAgent or eGain software at a reduced price, and even librarians to staff your service, if staffing is an issue. If you are interested in reading more about the types of software that are available, The Teaching Librarian [http://pages.prodigy.net/tab01/digref.htm] offers a very readable exploration of the functionality and features of the various types of software. But let me share some specifics about the chat-based virtual reference service we have developed at the University of Florida. RefeXpress, the George A. Smathers Libraries’ real-time reference service, is powered by an eShare Communications software called NetAgent [http://www.eshare.com/]. After evaluating a wide variety of software, we settled on NetAgent because of several advanced features that allow librarians to work more closely with users. In addition to the chat space, some of these features are:

- Users do not need special software to connect, only a Java-enabled web browser, such as Netscape Communicator, Opera, or Internet Explorer.
- A powerful client to help librarians answer questions quickly.
- The ability to show users web pages on their screen (push page).
- The ability to escort a user through a web search.
- Private messaging between librarians (independent of the chat space).
- A database of phrases that librarians frequently employ with users (e.g., “How may I help you?”); files of handouts, etc.; and web pages, any of which may be transmitted to a user with a couple of clicks
- Transcripts that are automatically mailed to users.
- Easy statistical reporting.
- An accompanying e-mail module that has streamlined our e-mail reference service.
- VOIP (voice over IP) capability.

You have seen the librarian’s perspective of a chat session, but what does a session look like to the user asking a question? Users can connect to RefeXpress from the logo prominently featured on the UF Libraries’ homepage [http://www.uflib.ufl.edu/], from help links on navigation bars peppered throughout the
library website, or directly at this URL: <http://refexpress uf.lib.edu/>. After clicking on the link to ReFeXpress, a splash or welcome page displays hours and information about the service and a "Go!" button. Users fill in a name, an e-mail address, and their question, and click on the "submit" button. A small pop-up window announces that the user is connected, followed by an automatic greeting, "Welcome to ReFeXpress! A librarian will be with you shortly." Once the librarian reads the question and connects with the user, the next thing the user sees is a split screen that is half active web browser and half chat window. As the librarian helps the user, or sends a page to the user, it is displayed in the top part of the screen, while comments or instructions on what to look at on the page are displayed in the chat window below. At the end of the session, the last page that the user sees is an online chat satisfaction survey.

ReFeXpress is a true collaborative effort, developed and staffed by reference librarians across all seven Smathers libraries. While some institutions have created new positions to staff their real-time reference services, the Smathers Libraries has taken the approach of working chat into the responsibilities of their existing reference librarians. Generalists and subject specialists from reference, collection management, and resource services units from the seven libraries work an average of two hours a week monitoring the chat service for the 56 hours a week that the service is open. A coordinator manages the training and day-to-day operations, assisted by the e-mail reference coordinator and the chat planning team.

The service has received very positive feedback from students, faculty, and other users, and usage is growing. We receive a broad variety of questions in the service, ranging from help with connecting to and searching databases to requests for facts and assistance with research projects. These questions are not different from those asked at our reference desks or via e-mail; they only vary in the medium in which they are asked.

There are many challenges in setting up a chat reference service, not the least of which is selecting and installing usable software and marketing the new service to your users. But, in my experience, the real challenges are overcoming staff resistance to a new and unfamiliar service, teaching effective online communication, and training librarians to field questions outside their areas. One of our librarians, an accomplished reference librarian, commented that working in ReFeXpress reminded her of her first day working at a reference desk, and the anxieties and fears of not being able to answer questions or work with users. While one way to work around some of these issues is to create new lines and recruit experienced chat librarians to staff the service, you miss tapping into the considerable knowledge and reference skills of your existing librarians if you take that route. All of these challenges can be addressed by training and experience with working on the service. It is important to give staff ample time to practice their skills before going online, and to provide them with a safety net for their first few shifts (coordinators provide the net in our service by being online and accessible during new chat librarians’ first shifts). Our librarians work as a team, and it is not uncommon for the chat librarian on duty to call a reference desk or a colleague for assistance in answering a question, in troubleshooting a connectivity issue, or to refer a question. It is also important to realize that not every question that begins in a chat session is best answered via chat. Sometimes it is more effective to e-mail the answer, to ask the user to come to the library, or to refer the question. Chat reference is a convenient and very effective way to extend reference services to users outside the library, and requires the same kind of teamwork that keeps the traditional in-library reference desk operating smoothly.

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FORTHCOMING FROM SPEC
In 2002, Jana Ronan, Interactive Reference Coordinator, and Carol Turner, Associate Director for Public Services, of the University of Florida Libraries will conduct an ARL/OLMS SPEC survey and analysis of interactive online reference services being delivered by ARL libraries.

NISO ISSUES REPORT ON NETWORKED DIGITAL REFERENCE SERVICES
In April 2001, the National Information Standards Organization (NISO) convened a workshop on Networked Digital Reference Services. The workshop was attended by a diverse group of stakeholders representing the library and information community who explored what standards are needed to facilitate the development and implementation of Digital Networked Reference Services that can operate across international and geographic boundaries. A report on the workshop is available and includes summaries of and links to nine presentations given in open session and three discussion group sessions on protocol issues, knowledge base issues, and profiling issues. The report also identifies stakeholders who should be involved in next steps, existing models that may help in developing appropriate standards, and a group of interlinked standards that might be developed. The report is available on the NISO website <http://www.niso.org/news/reports/netref-report.html>.
A BRIEF LibQUAL+™ PHASE ONE PROGRESS REPORT
by Fred Heath and Colleen Cook, Texas A&M University,
and Bruce Thompson, Texas A&M University and Baylor
College of Medicine

The Association of Research Libraries (ARL) New Measures initiative grew out of a recognition that
"A measure of library quality based solely on collections has become obsolete" (Nitecki 181). One of these initiatives is the LibQUAL+™ research and
development project.

LibQUAL+™ is an ARL/Texas A&M University joint effort. This project is also supported, in part,
by a three-year grant from the U.S. Department of Education’s Fund for the Improvement of Post-
Secondary Education (FIPSE).

During the 1999–2000 academic year—"phase zero" in the FIPSE grant proposal—LibQUAL+™
was completed on the Web by 4,407 participants from 12 ARL institutions. This form of the protocol involved
22 items from the well-known SERVQUAL instrument (cf. Parasuraman, Berry, and Zeithaml; and
Parasuraman, Zeithaml, and Berry, “A Conceptual Model” and “Alternative Scales”). Respondents also
completed 19 trial items that were developed following qualitative analysis of library user interviews at nine
universities (Cook and Heath). These trial items were developed in order to measure service quality features
unique to the library setting.

A series of articles was published reporting analyses of the 1999–2000 data (a bibliography of these reports
may be accessed at <http://www.coe.tamu.edu/
~bthompson/servqbib.htm>). Following these analyses, the survey instrument was further refined and revised.

In the spring of 2001, during project phase one
(2000–01), a 56-item version of the LibQUAL+™
protocol was completed by 20,416 participants from
43 campuses. Of these 43 libraries, 35 are ARL members.

A series of reports associated with the LibQUAL+™
instrument used in 2000–01 (cf. Cook, Heath, and
Thompson; Heath, et al.; and Thompson, Cook, and
Thompson) indicate that:

- The LibQUAL+™ instrument can be pared down
to a 25-item survey that yields reliable scores on
four scales (Service Affect, Library as Place, Personal
Control, and Information Access) as well as on the
total scale.
- The factor structure underlying responses
matches the expected structure.
- Both individual and institutional normative
tables for converting scale and total scores into
standardized scores and percentile rank scores
are (and have been) developed.

- Scale and total scores correlate highly with perceptions of service quality, but not with
collections count measures, such as ARL Membership Criteria Index scores, as expected.

Based on these promising results, during project
phase two (2001–02), library users from 170 institutions
will participate in the survey. Further information
about the project may be accessed via <http://www.arl.org/libqual/>.

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LibQUAL+™ SPRING 2001 NORMS AVAILABLE

An initial set of norms from the spring 2001
survey is now available. The tables are based
on the survey results from over 20,000 library
users in 43 institutions. With this data, libraries may
compare their own scores with those of peer groups
or subgroups. To view the norms and for more
information, visit <http://www.coe.tamu.edu/
~bthompson/servnorm.htm>.
Measures and Statistics for Research Library Networked Services: ARL E-Metrics Phase II Report

by Wonsik “Jeff” Shim, Charles R. McClure, and John Carlo Bertot, Information Use Management and Policy Institute, School of Information Studies, Florida State University

The E-Metrics project, one of the ARL New Measures Initiatives, is an effort to explore the feasibility of defining and collecting data on the use and value of electronic resources. ARL has some experience in tracking expenditures for electronic resources through the ARL Supplementary Statistics, but there is a widely held recognition that more work needs to take place in this area. A group of 24 ARL libraries funded and participated in a study that took place from May 2000 to December 2001. The project was under contract with Florida State University’s Information Use Management and Policy Institute and was directed by Charles R. McClure, Wonsik “Jeff” Shim, and John Carlo Bertot under the leadership of project co-chairs, Sherrie Schmidt, Dean of University Libraries, Arizona State University, and Rush Miller, University Librarian and Director, University of Pittsburgh.

In October 2001, the project team completed the Phase II report that presents the findings from the field-testing of various statistics and measures and presents a list of recommended ones. The complete report is entitled “Measures and Statistics for Research Library Networked Services: Procedures and Issues: ARL E-Metrics Phase II Report” and is available on the ARL website <http://www.arl.org/stats/newmeas/emetrics/index.html>.

This study provides one approach, a beginning approach, for describing and measuring some of the resources, uses, and expenditures for supporting networked services in a research library setting. Such statistics and measures are essential for collections decisions; cost analysis; justification of services; services planning and evaluation; and a host of other activities. The Phase II report presents a first effort to accomplish these objectives and to standardize data collection techniques, definitions, and procedures related to networked and electronic resources and services.

Recommended Statistics and Performance Measures

Based on a substantial field-testing process (described in detail in the report), the project team recommends the following network statistics (Table 1) and performance measures (Table 2). The statistics and performance measures provide indicators of library networked services and resources.

The performance measures are composite and/or combinations of the network statistics along with, in some cases, non-network statistics already collected by ARL libraries (e.g., number of visitors to the library).

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**Table 1 Recommended Statistics**

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<th>R1</th>
<th>Number of electronic full-text journals</th>
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<tr>
<td></td>
<td>R2</td>
<td>Number of electronic reference sources</td>
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<td></td>
<td>R3</td>
<td>Number of electronic books</td>
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<td>Use of Networked Resources and Services</td>
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<td>Number of electronic reference transactions</td>
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<td></td>
<td>U2</td>
<td>Number of logins (sessions) to electronic databases</td>
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<td>U4</td>
<td>Items requested in electronic databases</td>
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<td>Virtual visits to library’s website and catalog</td>
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<td>Expenditures for Networked Resources and Related Infrastructure</td>
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<td>Library expenditures for bibliographic utilities, networks, and consortia</td>
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<td></td>
<td>D3</td>
<td>Cost of digital collection construction and management</td>
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</table>
Using the Network Statistics and Performance Measures

The recommended network statistics and performance measures, either independently or in some combination, can assist research libraries in describing a number of aspects of their networked resources and services. There is a section in the report that provides libraries with some guidance regarding the use to which the network statistics and measures can be put.

ARL libraries may currently collect measures that can provide some indication of the success of a particular program or service provided to customers, such as user satisfaction surveys. However, it is important to think broadly—with the desired state in mind—and not simply use the measures at hand because they are easy to collect or because a lot of time and effort has been devoted to collecting them.

In most cases, a single measure on its own is not enough to indicate whether a research library is successful in a given area. To accurately indicate the success or quality of an academic library, measurement should be implemented at three key levels: outcome level, use/capacity level (output), and resources level (input). (See Table 3 for illustrative questions at each level.)

Given the rapidly changing technology environment, the changing milieu affecting higher education, changing organizational structures within ARL libraries, and the complexity of measuring such networked services, it is almost certain that the statistics and measures proposed in this study will continue to evolve. The measurement tools offered in the Phase II report, however, will provide research librarians with important techniques to count, describe, and report networked services and resources in their libraries.

ARL LIBRARIES SPEND NEARLY $100 MILLION ON ELECTRONIC RESOURCES

Overall expenditures for purchasing electronic resources have increased from an estimated 3.6% of library materials budget in 1992-93 to 12.9% in 1999-2000. In 1999-2000, 105 ARL university libraries reported spending almost $100 million on electronic resources, an increase of close to $23 million from the previous year. A total of $9.5 million in additional funds was spent on behalf of 38 ARL libraries through centrally funded consortia. The vast majority of electronic resource spending is on electronic serials and subscription services. Document delivery/interlibrary loan services account for $11 million spent by 101 ARL libraries. Detailed data and tables are available in the ARL Supplementary Statistics 1999-2000. This publication is a useful benchmarking tool for libraries; information industry analysts can also judge the extent and growth of the electronic publishing market. The collected data is not found elsewhere. ARL Supplementary Statistics 1999-2000 is available online at: <http://www.arl.org/stats/sup/sup00.pdf>. Printed copies of this publication are available for $100 ($44 ARL members) from the ARL Publications Distribution Center, P.O. Box 531, Annapolis Junction, MD 20701-0531 <pubs@arl.org>, or order online at <http://www.arl.org/pubscat/order/index.html>.

<table>
<thead>
<tr>
<th>Table 2 Recommended Performance Measures</th>
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<tbody>
<tr>
<td>Performance Measures</td>
</tr>
<tr>
<td>P1 Percentage of electronic reference transactions of total reference</td>
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<tr>
<td>P2 Percentage of remote library visits of all library visits</td>
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<tr>
<td>P3 Percentage of electronic books to all monographs</td>
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<table>
<thead>
<tr>
<th>Table 3 Using Measures to Answer Questions at Different Levels</th>
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<tbody>
<tr>
<td><strong>Outcome Level</strong></td>
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<tr>
<td>What are the results of a program or process?</td>
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<tr>
<td>How successful or effective is the library?</td>
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<tr>
<td>How effective do customers perceive your programs to be?</td>
</tr>
<tr>
<td>What beneficial effects are you having on your customers?</td>
</tr>
<tr>
<td>How could a program be changed to better suit the needs of your customers?</td>
</tr>
<tr>
<td><strong>Use/Capacity Level (Output Measures)</strong></td>
</tr>
<tr>
<td>How much is a service, resource, or program being used?</td>
</tr>
<tr>
<td>Who is using a service, resource, or program?</td>
</tr>
<tr>
<td>Why are people using a particular program?</td>
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<tr>
<td><strong>Resource Level (Input Measures)</strong></td>
</tr>
<tr>
<td>What do we need to ensure success?</td>
</tr>
<tr>
<td>What funding level is appropriate or necessary for a particular program?</td>
</tr>
<tr>
<td>Do we need more of a particular resource in order to have a more effective program?</td>
</tr>
</tbody>
</table>
ARL MEMBERSHIP CONVENES

One hundred and four member institutions were represented at the 139th ARL Membership Meeting held in Washington, D.C., on 17-18 October. Shirley K. Baker (Washington in St. Louis), ARL President, convened the meeting with a discussion on “E-Metrics: Preliminary Findings from the ARL Project.” A panel of Carla Stoffle (Arizona), Rush Miller (Pittsburgh), and Sherrie Schmidt (Arizona State) brought the membership up to date on the status of work on E-Metrics (see article on page 8). Following this presentation, there were concurrent discussions on the following topics:

- Learning Outcomes, Research Outcomes, and Institutional Accreditation
- Managing Digital Library Programs & the Impact on Preservation
- Libraries in a Digitized, Commercialized Age
- The Role of Accreditation in Achieving High-Quality Library Education and a Proposal for an Independent Accrediting Body
- Shaping an ARL Agenda for Special Collections
- AUL Job Configurations and Hiring for Technology Positions

Background papers and a summary of most of these discussions now appear on the ARL website <http://www.arl.org/arl/proceedings/139/>.

The Federal Relations Luncheon featured a briefing by Thomas Susman, Ropes & Gray, on anti-terrorist legislation and its impact on libraries.

Elections

During the Business Meeting, Ms. Baker announced that the ARL Board on October 16th elected Fred Heath (Texas A&M) as Vice President/President-Elect of ARL. Also at the Business Meeting, the membership elected three new Board members to serve three-year terms. They are Joseph Bravin (Ohio State), Frances Groen (McGill), and Brian E. C. Schottlaender (UC-San Diego). Continuing members of the Board are Nancy Baker (Iowa), Shirley Baker (Washington in St. Louis), Fred Heath (Texas A&M), Paula Kaufman (Illinois at Urbana), Sarah Michalak (Utah), Paul Mosher (Pennsylvania), Sarah E. Thomas (Cornell), and Ann J. Wolpert (MIT).

At the conclusion of the Business Meeting, Ms. Baker presented the gavel to Paula T. Kaufman, who began her term as ARL President. Ms. Kaufman acknowledged the contributions of four Board members whose terms expired this October: Meredith Butler (SUNY, Albany), Kenneth Frazier (Wisconsin), Joseph Hewitt (North Carolina, Chapel Hill), and Carolynne Presser (Manitoba).

The 140th ARL Membership Meeting will be held May 22-24, 2002 at the Fairmont Miramar Hotel in Santa Monica, California. The meeting, hosted by UCLA and USC, will feature a program on fund-raising and recruitment.

ARL CONVENES FORUM TO EXPLORE COLLECTIONS & ACCESS ISSUES FOR THE 21ST CENTURY SCHOLAR

On October 19-20, 2001, ARL sponsored “Collections & Access for the 21st Century Scholar: A Forum to Explore the Roles of the Research Library.” The Forum explored new approaches to collection management and machine-assisted access strategies that could increase the visibility of research library collections to students and faculty who are increasingly using the Web to conduct research.

Teams from 45 libraries brought 144 library leaders together in the one-and-a-half day forum. The meeting produced a valuable list of ideas for how ARL and other agencies could address these issues in a collaborative setting. Speaker presentations and notes from the discussion sessions are available on the ARL website <http://www.arl.org/forum.html>. An ARL task force will be established to examine the action ideas that emerged from this forum and to make recommendations for how they may be pursued.

ARL PUBLISHES CASE STUDY OF E-JOURNALS

ARL is pleased to announce the availability of Electronic Ecology: A Case Study of Electronic Journals in Context, by Karla L. Hahn. In 1998, the ecology community was at the very earliest stages of developing a new communications system. Two new peer-reviewed journals were starting up in quite similar subject areas: one electronic only and the other publishing both print and electronic versions simultaneously. This study compares and contrasts the views of the editors who solicit and select material to publish in these two journals and the authors of content.

Through interviews with authors, editors, publishing staff, and journal readers, this study answers three questions:

1. What is the process that authors use to decide to publish in an electronic journal?
2. How do social factors influence the author’s decision to publish in an electronic journal?
3. How do the authors and editors working closely with an electronic journal perceive electronic journals?
The study also looks to the future of emerging publishing systems and highlights the importance of some of the functions developing in electronic publishing systems. An extensive bibliography is included.

Electronic Ecology is available for $45; visit <http://www.arl.org/pubs/cat/best.html> to order.

TRANSMITIONS

UC-Riverside: James Thompson is retiring as University Librarian. Venita Jorgensen has accepted the position of Interim University Librarian effective January 2, 2002. She is currently Assistant University Librarian for Public Services.

Cincinnati: Victoria A Montavon was named Dean and University Librarian effective October 1, 2001. She was previously University Librarian at Wright State University.

Colorado State: Camila Alire announced her resignation as Dean of University Libraries effective January 1, 2002; Julie Wessling was named Interim Dean with responsibilities for all external duties and Carmel Bush was named Operations Dean to manage all internal library operations.

Hawaii: Diane Perushek was named University Librarian effective December 2001. She was previously Assistant University Librarian for Collection Management at Northwestern University.

Missouri: Jane Vail was named Director of Libraries effective April 15, 2002. He is currently Team Leader for Collection Development and Management at the University of Minnesota.

National Agricultural Library: NAL continues to rotate the role of Acting Director. Sally Sinn will replace Maria Pisa effective December 3, 2001 for a two-month term.

New York State: Liz Lane announced her retirement as Director effective the end of October 2001; Mary Redmond is Interim Director.

South Carolina: George Terry asked to step down as Dean of Libraries effective August 15, 2001. John Olsgaard, Associate Provost and Professor in the USC Library School, is Interim Dean.

Southern Illinois: David Carlson was named Dean of Library Affairs effective September 1, 2001. He was previously Director of Libraries at Bridgewater State College.

Texas Tech: Donald Dyal was named Dean of Libraries effective December 1, 2001. He was previously Associate Dean for the Libraries of Texas A&M University.

ARL Staff Transitions

Jonathan D. Sousa joined ARL in October as Technical Applications Development Manager for New Measures Initiatives.

Other Transitions


National Endowment for the Arts: President Bush announced his intent to nominate Michael Hammond, Dean of Rice University’s school of music, to be the new chairman of the NEA.

Honors

Mary Jackson, ARL Senior Program Officer for Access Services, will serve a two-year term on IFLA’s Governing Board as an elected member of the IFLA Professional Committee.

SPARC received the Service to Not-for-Profit Publishing Award from the Association for Learned and Professional Society Publishers.

GEORGE D. TERRY, 1950–2001

Dr. George D. Terry, Vice Provost and Dean of Libraries at the University of South Carolina from 1991 to 2001, died unexpectedly of a stroke on October 20, 2001 while on vacation at Cape Hatteras, N.C. He was associated with the University of South Carolina for more than 30 years. In 1988, he was named Dean of Libraries and became active in ARL. Most recently he served on the ARL Research Collections Committee and on the Committee on Nominations in 1998. During the summer of 2001 he announced his decision to step down from his position at the University of South Carolina Library and return as a full-time member of the library faculty. Memorials may be made to the University Foundations for the Southern Heritage Endowment, USC Educational Foundation, 900 Assembly Street, Columbia, SC 29208.
# ARL Calendar 2002

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>January 7-11</td>
<td>Web Development with XML</td>
<td>Charlottesville, VA</td>
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<tr>
<td>January 20</td>
<td>Using LibQUAL+ Results</td>
<td>New Orleans, LA</td>
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<tr>
<td>January 21-22</td>
<td>LibQUAL+: A Total-Market Survey</td>
<td>New Orleans, LA</td>
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<tr>
<td>February 7-8</td>
<td>ARL Board Meeting</td>
<td>Washington, DC</td>
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<tr>
<td>February 15-17</td>
<td>ARL/OCLC Strategic Issues Forum</td>
<td>Las Vegas, NV</td>
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<tr>
<td>March 7-8</td>
<td>Our Collections: How to Preserve Them in Times of Rapid Change</td>
<td>University of Michigan/ARL, Ann Arbor, MI</td>
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<tr>
<td>March 12-15</td>
<td>Library Management Skills Institute II: The Organization</td>
<td>Seattle, WA</td>
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<tr>
<td>March 13-14</td>
<td>Project Management Institute: Getting Things Done or Getting the Outcomes You Want</td>
<td>Washington, DC</td>
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<tr>
<td>April 15-16</td>
<td>CNI Spring Task Force Meeting</td>
<td>Washington, DC</td>
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<tr>
<td>May 22-24</td>
<td>ARL Board and Membership Meeting</td>
<td>Los Angeles, CA</td>
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<tr>
<td>July 22-23</td>
<td>ARL Board Meeting</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>October 15-18</td>
<td>ARL Board and Membership Meeting</td>
<td>Washington, DC</td>
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**2002 Workshop Schedule Now Available**

For a complete listing of 2002 workshops, conferences, seminars, and institutes, visit online at <http://www.arl.org/workshops.html>.