Toward Developing Measures of the Impact of Library and Information Services

A convergence of factors, both within and outside of librarianship, has created an environment conducive to the development of what has in the past seemed too difficult—measures that will be able to determine the impact of library services. These factors include: advances in research that improve evaluation approaches; demands for public sector accountability; and governmental activities aimed at determining service outcomes. They will influence the development of a new generation of evaluation tools for librarians and other professionals. This article examines these factors within the framework of today's key evaluation questions, "What differences do public services make?" Using data from a recently completed IMLS-funded study, the authors identify and discuss impacts of library community information services as well as implications for the development of context-centered evaluation tools.

Factors Influencing Changes in Approaches to Public Sector Evaluation

Advances in Evaluation Scholarship

Researchers are making contributions to a paradigm shift by turning the evaluation lens away from institutions and toward people's activities. In the process they are beginning to provide public sector professionals with the knowledge and skills they need to turn the evaluation lens away from the institution and toward users of services.

Patton's definitive book on evaluation is a landmark contribution to understanding utilization-focused approaches to evaluation. It not only traces the development of these approaches, it also synthesizes many social service evaluations and presents approaches to focusing a particular evaluation, evaluation questions, methods, data analysis, and presentation of findings.[1] Patton puts measuring impact, or end results, at the top of his hierarchy of evaluation. Table 1 is based on this hierarchy.

The Aspen Institute's Roundtable on Comprehensive Community Initiatives produced a rich array of evaluation research, including two major reports on evaluation research and a database of measures for community research (www.aspenroundtable. org). These reports, developed by some of the evaluation field's finest researchers, provide a rich store of relevant theoretical and methodological approaches as well as a cogent discussion of the challenges and complexities associated with "fundamental questions about how to ascertain the ways in which an investment of resources has paid off."[2] This work clearly details the incredible difficulties faced by evaluators who seek to determine outcomes of community

Joan C. Durrance is Professor, School of Information, University of Michigan. **Karen E. Fisher-Pettigrew** is Assistant Professor, Information School, University of Washington. *Submitted for review July 9, 2001; revised and accepted for publication March 20, 2002.*

Table 1

Patton's Hierarchy of Evaluation Criteria

End results	Measures of impact on overall problem, ultimate goals, side effects, social and economic consequences.
Practice and behavior change	Measures of adoption of new practices and behavior over time.
Knowledge, attitude, and skill change	Measures of individual and group changes in knowledge, attitudes, and skills.
Reactions	What participants and clients say about the program; satisfaction; interest, strengths, weaknesses.
Participation	The characteristics of program participants and clients; numbers; nature of involvement, background.
Activities	Implementation data on what the program actually offers or does
Inputs	Resources expended; number and type of staff involved; time extended

Source: Michael Quinn Patton, Utilization-Focused Evaluation: The New Century Text, 3d ed. (Thousand Oaks, Calif.: Sage Pubs., 1997), 253.

services. These researchers stress the need for evaluators to ground their work in theory, in particular the theory of change, and to incorporate contextual factors. Finally, they recognize that "the practice of evaluation is itself a profoundly political and value-laden process, involving judgments about the validity of program objectives and choices about how progress can be measured."[3] The work of these researchers is vitally important to developing an understanding of the complexities of this type of evaluation.

In Local Places, Global Connections: Libraries in the Digital Age, Schement also articulated the importance of understanding the context in which citizens seek information and adopt new technologies. He warned that libraries "lag in [their] understanding of the evolving social context—a context in which libraries will have to justify themselves," and suggested that libraries consider "how Americans [will] live their lives as citizens, as economic actors, and as social beings."[4]

Digital library researchers have begun to examine the social aspects of the design, use, and impact of information systems.[5] Bishop and her colleagues argue that combining these approaches with participatory action research

> . . . focuses digital library design and evaluation directly on the digital divide. Participatory action research demands relevant outcomes for marginalized members of society. It seeks to enhance the problem-solving capacities of local community members by actively involving them in every phase of research—from setting the problem to deciding how project outcomes will be assessed. In this approach, the intended users of a digital library participate as researchers, not subjects.[6]

Bishop et al. use scenarios developed by the target audience in the design and evaluation of services. They found that "scenarios empower potential users as initiators in the analysis of information about their expectations and requirements, rather than treating them as mere informants in the design process."[7] They note that scenarios are needed to develop "a more complete picture of the social context of information-seeking and technology use for those marginalized groups who are often on the fringes of system design and evaluation."[8] Our own research falls within the scope of research on information behavior, especially Dervin's sense-making framework that we applied in an online environment.[9]

Although the factors discussed below reflect an evaluation revolution still in its infancy, they have already resulted in solid moves toward the development of effective, context-centered evaluation tools for librarians.

Demands for Public Sector Accountability

Public sector interest in outcome measures and measures of impact is at an all time high. For nearly a decade, political rhetoric has focused on unresponsive government. In the United States, both Republicans and Democrats have focused on approaches to increase public sector accountability. The past decade has brought a convergence of thought among decision makers that federal, state, and local governmental agencies, institutions, and nonprofit organizations must begin to reshape public services and products to focus more effectively on outcomes. This reflects a loss of citizen confidence in the work of governmental agencies and an increasing recognition that current evaluation tools used by the public sector are inadequate.

The federal government has identified reinventing government as a priority and at the same time has focused on developing approaches government agencies can use to demonstrate results.[10] Two federal initiatives in particular are driving interest in outcome measurement in governmental agencies: the

Government Performance and Results Act (GPRA) of 1993 and the Government Accounting Standards Board Concepts Statement 2 in 1994. GPRA requires every government agency "to establish specific objective, quantifiable, and measurable performance goals for each of its programs. Each agency must annually report to Congress its level of achievement in reaching these goals."[11]

Although these initiatives started at the federal level, they are moving down to implementation at the local government level. "When GPRA is fully implemented, it will directly impact state and local governments that receive Federal funding by requiring them to report on program results"[12] Thus demand for public sector accountability is a key factor in the changing evaluation horizon across the public sector.

Federal Governmental Agency Action Designed to Measure Impact

The federal government evaluation activities presented in this section are direct responses to the moves by legislative and regulatory arms of government discussed above. Government agencies are under pressure to show that funds entrusted to them are spent effectively. As a result, agencies whose responsibilities include providing grant funds require accountability of those who receive them. The examples that follow show evaluation activities of three federal agencies: the Department of Commerce's National Telecommunications and Information Infrastructure Administration Telecommunication Opportunities Program (TOP; formerly TIIAP), National Science Foundation (NSF), and Institute of Museum and Library Services (IMLS).

TIIAP/TOP Evaluation Approaches

In its "comprehensive look at the impacts of the TIIAP investment," Westat sought to determine impact "in terms of the nature and degree of the effects on the organizations implementing the projects, other organizations that were involved with the projects, the individuals and communities that were served by the projects, and the specific value added by the TIIAP funds."[13] To obtain broad data on the impact of federal funds, Westat developed questionnaires and conducted mail surveys of all TIIAP grantees. They found that the major impacts of community networks included: improving training and learning opportunities (59.9%), coordinating communitywide communication services (53.6%), and serving long-term telecommunication needs of communities (64.8%). While the questionnaire approach used by Westat is far from adequate, it reflects the

state of the art in 1999. However, this comparative data does help agencies examine their services from the perspective of community impact.

NSF Funded Examination of Community Technology Centers

The "Impact of CTCNet Affiliates" is a pioneering report that effectively builds on a qualitative study of community technology centers.[14] Of particular note is that this research, funded by NSF, marks a departure for NSF, which in the past had not seen the value of qualitative approaches. The report describes results from a survey of 817 people, ages 13 to 91, at 44 community-based technology centers affiliated with the Community Technology Centers's Network (CTCNet). CTCNet affiliates include libraries, youth organizations, multiservice agencies, stand-alone computing centers, cable access centers, housing development centers, settlement houses, and various other nonprofit organizations. Their common thread is that they all provide access to computers and related technologies, typically (but not entirely) to underserved or otherwise disadvantaged populations. Building on prior research conducted in 1997, this study was designed to increase understanding of the effect of community technology centers, particularly in the domains of employment, learning, personal gains, and sense of community.

The Community Connector (www.si.umich.edu/Community) summarizes the findings: "The survey found that women and people of color make up the majority of centers' users (62% of respondents were female, two-thirds were non-white); 65% of respondents took centers' classes to improve their job skills; 30% used the centers' Internet access to look for jobs. A majority of users said an important reason for coming to the center was learning about local events, local government, or state/federal government."

In the report CTCNet researchers identify specific impacts of community technology centers (CTCs), most of which serve disadvantaged populations. Categories of impact of CTCs include employment, learning and other personal gains, and a sense of community. Table 2 shows the most commonly mentioned impacts of CTCs identified by the NSF study.

IMLS Activities

Within the framework discussed above and recognizing the reluctance of professionals to adopt radically new approaches to evaluation, the IMLS has taken several major actions designed to assist librarians and museum curators to adopt approaches designed to determine the differences that public

Table 2

Impacts of Community Technology Centers

❖ work-related benefits such as improved job skills, improved computer skills
❖ access to employment opportunities
❖ education and improved outlook on learning
❖ new skills and knowledge
❖ personal efficacy and affective outcomes, (general improvement in their life, their confidence, their outlook on life, and their future prospects; feelings of accomplishment and hope)
❖ changes in the use of time and resources
❖ increased civic participation
❖ changes in social and community connections
❖ technological literacy (i.e., improved perceptions of technology—as a means to achieve individual goals)
❖ more effective use of technology
❖ appreciation for access to hardware, software, and video
❖ general enjoyment and appreciation of the center

services make. IMLS staff developed a variety of materials designed to help front-line services providers become familiar with outcome measurement as a tool.[15] They have also developed a series of workshops designed to help recipients of IMLS funding to understand and incorporate outcome measures into their own evaluation approaches. The IMLS basic evaluation guide defines outcome measures as: "benefits to people: specifically, achievements or changes in skill, knowledge, attitude, behavior, condition, or life status for program participants."[16]

An IMLS major white paper on evaluation challenges librarians and museum curators to rethink the way they currently evaluate public services. "The work of museums and libraries . . . takes place in an era of increasing demands for accountability. Such demands have already become a legislative reality with the passage of the Government Performance and Results Act (GPRA)."[17] The authors of this report caution that "in growing numbers, service providers, governments, other funders and the public are calling for clearer evidence that the resources they expend actually produce benefits for people." The report posits that this new approach to evaluation will "replace the question, "What have we done to accomplish our goals?" with the question, "What has changed as a result of our work?" IMLS warns that "if museums and libraries do not take the responsibility for developing their own set of credible indicators, they risk having someone else do it for them."

The approaches recommended involve a change of focus from an emphasis on the services themselves to "the measurement of results" and "the effect of an institution's activities and services on the people it serves—rather than on the services themselves (outputs)." IMLS official Beverly Sheppard calls this

shift "an emerging keystone of library and museum programs." IMLS has, in effect, issued a mandate to librarians to undertake new approaches to evaluation. While these mandates are directed to librarians and museum curators, they are, as we have discussed, part of a far larger pattern that is moving the public sector toward developing evaluation approaches designed to determine the impacts of public sector services and activities.

Moves toward Impact Measurement by State and Local Government Agencies

The influence of actions at the federal level have found their way to state and local levels of government, greatly expanding their sphere of influence. A number of state agencies and local governments have already begun to develop outcome or performance tools that can be used to determine the extent to which taxpayers are getting their money's worth. *Maine's Guide to Performance Measurement,* a product of the Maine Bureau of the Budget and the State Planning Office, is but one example of these efforts. Its developers point out that it was modeled on similar efforts by other states.[18] State level guides result from legislation aimed at increasing the accountability of state and local agencies. They apply to all state and local agencies that receive or allocate state funds.

The Multnomah County Auditor's report, *Service Efforts and Accomplishments Feasibility Study (SEA),* issued in 2000, is an example of activity at the local level of government.[19] Public librarians across the nation are being asked by local decision makers such as public auditors and public administrators to provide evidence of the impact of their work in the community. The challenge faced by librarians is to develop tools that will satisfy external decision makers and, at the same time, appropriately show how libraries and librarians help. Decision makers stand poised to develop the tools themselves if they are not designed and crafted by librarians. Interestingly the auditor's report cited above reflects trust between the auditor's office and Multnomah County Public Library; the auditor trusted library administrators to develop their own initial set of performance measures.

The emerging governmental agency mandates are the factors that are most likely to result in widespread adoption of outcome measures by libraries and other public sector agencies. Agencies and researchers will need to avoid falling prey to overly simplistic measures of impact by failing to fully take into account the complexities of outcome evaluation identified by researchers associated with the Aspen Institute Roundtable on Comprehensive Community Initiatives.[20]

Toward the Development of Context-Centered Evaluation Tools for Public Librarians

Evaluation tools for librarians have steadily evolved for twenty years. Over time new tools have been developed to provide increasingly better ways to measure library performance. Current measures provide indicators of the extent to which library services reach the community. For example, librarians have been able to collect per capita data on circulation, reference questions, and program attendance for nearly two decades.[21] Most of these tools, however, are system-centered and are thus unable to measure impact. Recently Bertot and others developed a manual that will help librarians measure networked services—an increasingly large part of what most librarians do.[22] That manual, based on extensive study of deployment and evaluation of networked services, identifies a candidate group of measures and guides librarians through the process of implementing them. This provides valuable data that will help librarians measure use of electronic services (but not determine their impact). Hernon and Altman's recent book on library evaluation encourages library staff to involve users in the evaluation of library services; they posit that library users should be the key to assessing the quality of library service.[23] Our research shows why this is the key consideration.

IMLS's recent publication on evaluation posits that librarians, the agencies, and other supporters of libraries intuitively believe "that libraries and museums have a profound impact on individuals, institutions, and communities"[24] Peggy Rudd, director of the Texas State Library and Archives Commission, declares in that publication that libraries require a "measurement system that will verify our intuitions." Rudd's essay, titled, "Documenting the Difference: Demonstrating the Value of Libraries through Outcome Measurement," challenges librarians to take the steps necessary to move toward developing and using approaches that will show what differences libraries make. She indicates that "While it would be much more convenient if the worth of libraries was simply accepted on faith by university presidents, county commissioners, city managers, and school boards, that is frequently not the case. Outcome measurement has the potential to be a powerful tool to help us substantiate the claims we know to be true about the impact of libraries in our institutions and in our society."[25]

In spite of advances in evaluation approaches, and IMLS's call for a major shift in library evaluation approaches, most librarians are unable to determine the impact of library services or answer the key eval-

uation question—What has changed as a result of our work?[26] However, as we discussed earlier, researchers are making strides in developing such tools. Our recently completed IMLS-funded study of community information services—in particular public library community network collaborations—shows not only that the work of community information (CI) librarians has far reaching impact in the community but also that CI librarians are painfully aware that their current tools do not help them determine impact. Figure 1 shows the strength of librarians' perceptions of the inadequacy of current tools. Virtually no librarians in our study believed that the approaches currently available to them were adequate to determine impact.[27]

Although our study showed that librarians see their current evaluation tools as inadequate to evaluate the public's use of CI, when asked, many were able to identify ways that the citizens in their community used CI. Fifty-four percent of these librarians said that they remembered a time recently when they had learned how someone or some group had made use of community information. We received scores of examples from librarians responding to our survey that indicate the impact of library services from the perspective of those who used them. Librarians understand their value and many of them share these stories with administrators, but at present there are no mechanisms nationally to develop tools based on such data.

The next section of this paper presents a discussion of context-centered approaches to evaluation.
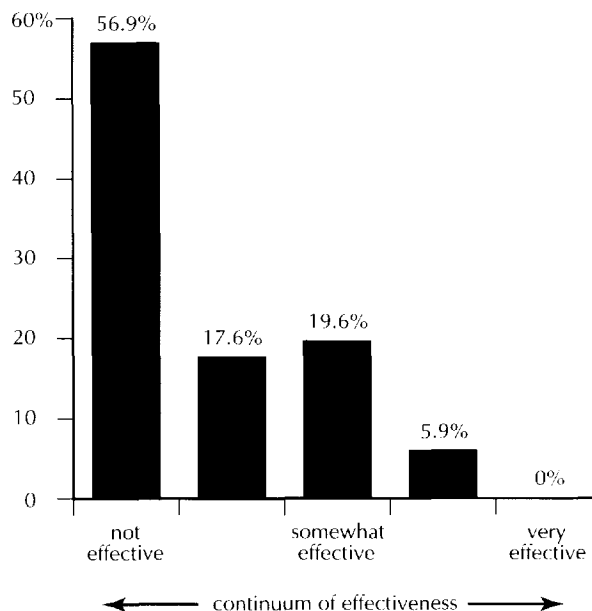

Figure 1

Librarians' Perceptions of Current Evaluation Tools

These findings are discussed in more detail in other publications.[28]

Context-Centered Approaches to Determining "What Has Changed as a Result of Our Work?"

To move toward context-centered evaluation our approach has been to focus the evaluation lens on people who need and use information rather than on the institutions that provide access to it. To do this we have conducted research aimed at learning how citizens and communities benefit from public library digital community services, and how these services build community by collecting a number of anecdotal examples and through analysis of surveys and interviews of citizens, representatives of local organizations, and public library staff in selected communities.

The approach we use builds on the rich store of research that has been done in the past decades by researchers who have focused on information seeking and use, more recently called information behavior, particularly on research on people's use of every day information.[29] Our approaches and data collection instruments, including the user survey and follow-up interviews, were influenced by Dervin's sense-making theory, a set of user-centered assumptions and methods for studying the uses individuals make of information systems.[30]

At this stage in our research we are still documenting how individuals and the larger community benefit from digital community information services. This research is the result of two different proposals funded by IMLS. Our 1998–2000 IMLS National Leadership Grant, *Help-Seeking in an Electronic World: The Role of the Public Library in Helping Citizens Obtain Community Information over the Internet,* investigated the ways public libraries harness the power of the Internet to provide digitized information to their communities and explore public library involvement in community networks, and has begun to determine the impacts of these services on local communities. Our 2000–2002 IMLS-sponsored research, *How Libraries and Librarians Help: Context-Centered Methods for Evaluating Public Library Efforts at Bridging the Digital Divide and Building Community,* builds on our previous research by broadening it to a larger number of community focused information services and completes the data collection. This grant is designed to result in a suite of context-centered tools for evaluation.

The aim of these two studies has been to collect data from citizens, nonprofit organizations, local government agencies, and others who, in the course of problem solving, seek and obtain community information. We have learned that a majority of libraries distribute community information in digitized form, for which community networks are primary vehicles. We found that users seek community information about employment, volunteerism, social service availability, local history and genealogy, local news, computer and technical information, as well as other people. The impacts identified by citizens and organizations vary widely—from personal gains to benefits to the community. We found that networked community information services empower citizens in a variety of ways. They facilitate the flow of information within communities, and actually help build community. People said they were able to access hard-to-get and higher quality information more easily with decreased costs in time and money. From the data in these studies we are developing indicators of impact that reflect the social context in which individuals access and use digital community services. Our final stage will be to be to develop tools aimed at helping librarians show the impact of their services.

In the following section we briefly examine selected preliminary indicators of impact based on the data collection and analysis associated with these two major studies of community information use. Looking back at table 2 we see that the NSF-funded study listed benefits of community technology centers. We go further in our approach by grouping benefits into clusters. By clustering benefits or impacts as experienced by users of these services, we will be able to develop comprehensive context-centered tools for librarians. The reader should bear in mind that these clusters are still preliminary and are not complete. Nonetheless they provide powerful evidence that libraries, indeed, "have a profound capacity to make a difference in their communities."[31]

Benefits of Community Information— What Differences Do Library Services Make in the Lives of Individuals?

A look at benefits from a citizens' context reveals many ways that CI libraries and librarians contribute to the social fabric of their communities. Following are examples of benefits submitted by CI librarians. Those shown only scratch the surface, but they do show the impact of community information services on the lives of people. The responses included here as examples represent only a few responses to our question: "Can you remember a time recently when you learned how someone or some group made use of or benefited from CI? If yes, please provide us with one or two examples of how a person (adult or child), government agency, nonprofit organization or community or citizen group used or benefited from CI."

To show the cumulative impact of anecdotal data, we have grouped some of the responses we received into representative categories of impact that reflect patterns in the data submitted—citizens report personal assistance that leads to empowerment, they gain value that results from connecting with other people and groups, and they seek and obtain assistance that results in neighborhood improvement. These examples, some of which are potential indicators of increased social capital, reflect only a few of the ways that CI makes an impact on the lives of people in the community.

Personal and Family Benefits

The examples that follow, submitted by librarians across the nation, are only crudely grouped. This category, for example, can be broken down further into such areas as skill- and confidence-building, employment, and educational gains. As we continue our study, we will develop all categories in much more detail.

❖ "Every year about five adults collect information on how to get their GED, register for the test, and pass with assistance provided at the library. Help ranges from providing basic directional information to help taking a practice test to one-on-one tutorial assistance."

❖ "A woman whose husband had used our employment database told us how valuable it was in his making contact with an employer who has offered him a job."

❖ "A single mother with three children called. Her boyfriend (father of two of the kids) had left, taken their money, and was nowhere to be found. We referred her to local agencies to get help with emergency food, diapers, personal care items, school shoes and clothing for the oldest child, and where to get copies of the children's birth certificates that the boyfriend took with him."

❖ "A person who was setting up a small business needed advice on licensing requirements. She used our community directory for lists of organizations to contact, our Web site, the electronic small business directory produced by us, and our print resources. She later sent us a very complimentary e-mail."

Connectedness among People and Groups

Throughout our study people made a distinction between getting information about the community and information that would help them make connections with other people and organizations. People need—and benefit from—reaching out and making connections with others. Dervin and Clark first alerted librarians to the phenomenon of connectedness in the 1980s.[32] Recently Chelton and her colleagues called attention to it vis-à-vis those who seek to find a birth parent or a child given up to adoption in a recent article in *Reference & User Services Quarterly*.[33] Librarians who fail to recognize this need may inadvertently limit the ability of people to obtain the information they need to make connections in their lives (and thus limit the potential impact of CI).

❖ "A concerned relative from halfway across the country was able to contact one of our senior citizen services to check on her elderly relative."

❖ "Librarians [on our staff] report connecting patrons to support groups and counseling services, assisting grandparents seeking custody of grandchildren, adults looking to adopt. . . ."

❖ "An individual wanted to home-school her children. She used the community information database to locate other home-schooling parents and joined a related organization."

❖ "There was a tragic fire in our city last Christmas that claimed the lives of a father and all but one of his children. The fire department asked the library to suggest some social service organizations and community groups that could offer aid to the surviving mother and child. The library created a potential referral list using the community information database."

❖ "An organization that administers our hospital told us that many of their patients use the community information database to locate support services for themselves in preparation for leaving the hospital. A brochure is placed on each meal tray to promote use of the service."

Contributions to Neighborhood Improvement

We found many examples of librarians who had learned of ways that community information had made specific contributions to the lives of people and had contributed to making the neighborhood a better place to live in. These are only a few submitted by librarians in response to our request:

❖ "A couple has just bought a home which has a pond declared wetlands by the state. Using the new GIS (geographic and aerial photo database) the couple has the evidence needed to get the Department of Transportation and Department of Environmental Management to help clear the pond of sand and salt from winter road work, which caused a large sandbar in the pond, reducing aquatic life substantially."

❖ "The library has a number of old pictures of residences. These have been helpful to people trying to restore older homes."

❖ "With the help of the library's photo collection, volunteers based the construction of a children's playground on a building in one of the historic photographs."

In spite of the fact that more than half of the CI staff in our national survey were able to identify ways that people used and benefited from CI, most librarians indicated that they did not have the tools they needed to capture and use that information. The following section features more detail about the potential impacts of one type of focused library service—participation in a community network. Other focused library services such as literacy programs, job and career information centers, and services for immigrants are ideal candidates for the application of context-centered approaches to evaluation.

What Differences Do Community Networks Make?

By far the richest data on the impact of community information services in this study came from the communities of Portland, Oregon (www.cascadelink.org), Pittsburgh (http://trfn.clpgh.org), and the suburban Chicago area (www.nsn.org)—each of which featured a community network (CN) developed and led by the local public library. There we sought to determine the impacts of public library–sponsored CNs on citizens, organizations and groups (including service providers who participate in CNs), as well as their impact in the community.

Data collection methods in each local community included (1) an online survey and follow-up telephone interviews with adult CN users who accessed CI Web pages; and (2) in-depth interviews, field observation and focus groups with public library–CN staff, local human service providers, and members of nonprofit organizations. The steps we took to address methodological considerations when conducting online surveys are discussed in Pettigrew and Durrance.[34]

Our research on CNs shows how a context-centered approach can provide rich data that can be transformed to show the impact of focused library services on the community, particularly on nonprofit groups. We found that those involved with their local CN were able to identify in their own words a range of benefits that accrue to themselves and to the community. We show that anecdotal data can be grouped into categories that show the breadth of impact on the community. We identified a number of ways that CNs provide value for service providers, their clientele, and the community. The use of qualitative approaches yielded rich and convincing examples of how a CN can help a community through the information it brings together and the community-building activities that occur along the way. Our data revealed five broad categories of benefits and within these categories specific areas that represent indicators of the impact of these focused services.

Specifically, we found that a CN can:

❖ Overcome barriers, including geographical and digital divide barriers and the reluctance to ask for information
❖ Increase the effectiveness of nonprofit organizations and help them become more responsive to the community
❖ Increase people's ability to access relevant information
❖ Mobilize community organizations as information providers and help them see the value of librarians' knowledge and values
❖ Contribute to community building, foster civic engagement, create a sense of community

In this section we briefly discuss these five broad categories of benefits of CNs illustrating each with one or two examples from our data.

Overcoming Barriers

Community networks are able to overcome barriers identified by citizens—including geographical and digital divide barriers and the reluctance to ask for sensitive information. CNs in our study harnessed the power of the Internet to bring together previously unconnected individuals and groups by diminishing the barriers of physical distance. For example: an employee at a nonprofit agency explained how "many of the people we serve are the least likely to have their own computers and Internet access. The community network allows access to everyone through dial-up services and public library access."

Increasing Organizational Effectiveness and Responsiveness

Staff interviewed at different nonprofit organizations articulated how the CN increased their effectiveness by saving them time and money and by increasing their knowledge, skill, and organizational visibility both in the community and beyond its borders. As a result of their increased effectiveness, these service providers found that they had been able to build capacity by becoming more responsive to their constituents and to the community. According to one school district employee: "What makes the CN successful is the way it is based on a network system. You already have that infrastructure in place so you're not building something from scratch—that would take forever. If you start it from the library,

50

you can work from there and save a great deal of time in doing so."

Increasing Ability to Access Relevant Information

Community networks increase the ability to access relevant information, thus empowering community organizations to provide their clientele with well-organized, trusted information sources. Our interviews with users of CNs repeatedly revealed the appreciation that people felt being able to get information they had previously viewed as hard to get.

Citizens and nonprofit leaders told us that through the CN they felt that they were able to access a higher quality of information—more current, more comprehensive, better organized, and information linked to other relevant sources and sites. Users also found that the information brought together on the CN was easier to use. This saved them time, money, and energy, reducing their "transaction costs" and increasing the convenience of getting information. These alone are powerful indicators of impact that can be seen in most effective library and information services.

CN users noted that they had an increased ability to identify trusted information. Increased trust in the library as an important resource is one outcome of this new ability to access information. One nonprofit leader expressed the concept of "trust in information" in the following way: "I would say the library contact is the best part of our connection with the community network. Putting the library in that role is the biggest benefit to the community and the library."

Mobilizing Community Organizations as Information Providers

Importantly, CNs help nonprofits and government agencies become information providers. The CNs we studied actively work with organizations in their communities to help them become information providers (IPs). As IPs, these nonprofits and government agencies are learning to recognize their responsibility to provide content regarding their services and programs via their library-sponsored electronic community networks.

The nonprofit organizations we interviewed have come to recognize the tremendous potential of information sharing and collaboration through their community network. In the process, groups become more likely to link to and from related information, understand the value of information currency for their own information and that of others, and come to value librarians' knowledge, skills, and ability to increase access to CI. As one community group member indicated: "It brings everything to one location.

It's very easy to navigate around in and everything is right there at your fingertips—it's just right there."

Contributions to Building Community

The benefits of CNs summarized above have a cumulative or multiplier effect. A viable CN results in a critical mass of organizations that understands its functions and contributes to its success. When these conditions occur, the CN can make strong contributions to community building by bringing organizations together, strengthening organizational partnerships, often resulting in increased training opportunities, organizational telecommunication capabilities, and other benefits. A CN can foster civic engagement through volunteerism and other means, and it can create among the citizens a sense of community. Two examples of these community building contributing factors are included here.

"That's what I think is the coolest idea—the PTA president and the police chief might get together, the park district and someone who works with physically disabled kids might get together, the school librarian and the public librarian might get together."

One citizen leader described the atmosphere at a recent meeting of CN participants: "I was sitting there in a room with people representing pretty much every facet of a community. You had a business owner, a fireman, a police officer, as well as people representing a social service agency, the chamber of commerce, school districts, park districts, and every facet of a community. That's what I think is the coolest idea—the PTA president and the police chief might get together, the park district and someone who works with physically disabled kids might get together, the school librarian and the public librarian might get together."

A local government official from a municipal health department saw the CN as a vehicle to strengthen the department's grant-making activities. "Since funders often require that you show how you will share information on your activities with the community, [we] list the community network in our grant applications, citing the network as an important means of disseminating our message."

While not exhaustive, these five broad categories of benefit present a number of indicators of CN impact within the social context of their use. These examples clearly show that librarians will be able to document the differences that libraries and librarians make in their communities. As this section shows, these differences are many and varied and are best understood by focusing the lens on those who need and use the information.

Moving toward the Development of Context-Centered Measures of Determining Impact

This article has shown that a convergence of factors has resulted in the recognition that the public sector, including libraries, not only requires but also seems to be getting ready to accept a new generation of evaluation tools. Librarians know that their current tools don't do the job. This article also makes it clear that the tools for librarians will be developed with or without the input of LIS researchers or librarians. We believe, however, that the leadership in the development of relevant tools will come from within librarianship. Emerging evaluation scholarship discussed earlier has paved the way. A cadre of researchers has moved toward the creation of relevant tools. IMLS has taken bold steps to lead the field in the development of outcome measures.

Our IMLS-funded research projects show public library networked community information services make profound contributions to the communities they serve; our research also revealed that many CI librarians are already aware of this impact. The problem, however, has been that this knowledge is anecdotal and piecemeal, and thus far no mechanism has been developed to help librarians systematically gather, organize, analyze, and use it. Lacking con-

text-centered evaluations tools, librarians cannot effectively determine the impact of their work. As a consequence, managers have difficulty conducting informed analyses (e.g., to determine resource allocations, system improvements), miss opportunities to expand or improve services, or fail to value the use of CI. Our next task will be to develop evaluation tools that will help librarians collect, analyze, and use relevant evaluation data.

By the end of 2002, our IMLS-funded research project, "How Libraries and Librarians Help: Context-Centered Methods for Evaluating Public Library Efforts at Bridging the Digital Divide and Building Community" will result in a suite of tools designed to document impact. They will help librarians show how digital community services help community organizations, citizens, and communities benefit from public library digital community services, and how these services build community. These tools also will be able to show patterns of impact that reflect the social context of use. Our aim is that these tools will enable librarians to capture the richness associated with knowing how libraries and librarians help and reflect a range of ways that digital community services affect people's lives.

It is likely, given the complexities associated with outcome evaluation approaches discussed in this article, that the first iteration of tools (ours as well as those developed by others) will be relatively crude. The challenge is to develop tools that take advantage of emerging evaluation research, that are usable but not overly simplistic, that satisfy external decision makers and librarians, and that are perceived as relevant both within the field and outside of it. These tools and others like them will help librarians effectively show how libraries and librarians help and will move the field toward the acceptance of sophisticated context-sensitive evaluation instruments. ■

References

1. Michael Quinn Patton, *Utilization-Focused Evaluation: The New Century Text,* 3d ed. (Thousand Oaks, Calif.: Sage, 1997.)
2. *New Approaches* 1, 2 (1997). Accessed June 10, 2001, www.aspenroundtable.org/vol2.
3. James P. Connell, Anne C. Kubisch, Lisbeth B. Schorr, and Carol H. Weiss, *New Approaches to Evaluating Community Initiatives* (1997). Accessed Aug. 6, 2002, www.aspenroundtable.org/vol1/index.htm.
4. Benton Foundation and Libraries for the Future, *Local Places, Global Connections: Libraries in the Digital Age.* (Washington, D.C.: Communications Development, 1997).
5. Rob Kling, "What Is Social Informatics and Why Does

It Matter?" *D-Lib Magazine* 5, no. 1. Accessed January 1999, www.dlib.org; Rob Kling, "Learning about Information Technology and Social Change: The Contributions of Social Informatics," *Information Society* 16, no. 3 (2000): 1–37; Ann P. Bishop, Nancy A. Van House, and B. Buttenfield, eds., *Digital Library Use: Social Practice in Design and Evaluation* (Cambridge, Mass.: MIT Pr., in press).
6. Ann P. Bishop et al., "Socially Grounded User Studies in Digital Library Development," First Monday, June 2000. Accessed Sept. 12, 2002, www.firstmonday.dk/issues/issue5_6/bishop.
7. B. Mehra, A. P. Bishop, and I. Bazzell, "The Role of Use Scenarios in Developing a Community Health

Information System," *Bulletin of the American Society for Information Science* 26 (April/May 2000): 10–12.

8. Bishop et al., "Socially Grounded User Studies in Digital Library Development."

9. Karen Pettigrew, Joan C. Durrance, and Pertti Vakkari, "Approaches to Studying Public Library-Networked Community Information Initiatives: A Review of the Literature and Overview of a Current Study," *Library and Information Science Research* 21 (June 1999): 327–60; Joan C. Durrance and Karen E. Pettigrew, "Toward Context-Centered Methods for Evaluating Public Library Networked Community Information Initiatives," *First Monday*. Accessed April 2001, www.firstmonday.dk/issues/issue6_4/durrance.

10. David Osborne and Ted Gaebler, *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector* (Reading, Mass.: Addison-Wesley, 1992).

11. Beverly Sheppard, "Outcome Based Evaluation: Showing the Difference We Make: Outcome Evaluation in Libraries and Museums." Accessed May 2000, www.imls.gov/grants/current/crnt_obe.htm.

12. Multnomah County Auditor's Office, *Service Efforts and Accomplishments Feasibility Study*, 2000.

13. "Evaluation Report for U.S. Department of Commerce: National Telecommunications and Information Administration, Telecommunications and Information Infrastructure Assistance Program: 1994 and 1995 Grant Years" (Washington. D.C., Westat: Feb. 1999).

14. Clifton Chow, Jan Ellis, June Mark, and Bart Wise, *Impact of CTCNet Affiliates: Findings from a National Survey of Users of Community Technology Centers* (Newton, Mass.: Community Technology Centers' Network, 1998). Accessed Dec. 18, 1998, www.ctcnet.org/impact98.htm.

15. *Perspectives on Outcome Based Evaluation for Libraries and Museums* (Washington, D.C.: Institute of Museum and Library Services. 2000).

16. Ibid.

17. Ibid., 2–4, 18.

18. *Maine's Guide to Performance Measurement* (Augusta: Maine Bureau of the Budget and State Planning Office, 1999).

19. Multnomah County Auditor's Office, 2.

20. *New Approaches*, 1 (1997). Accessed June 10, 2001, www.aspenroundtable.org/vol1/index.htm.

21. Nancy Van House et. al. *Output Measures for Public Libraries: A Manual of Standards and Procedures* (Chicago: ALA, 1987).

22. John Carlo Bertot, Charles R. McClure, and Joe Ryan, *Statistics and Performance Measures for Public Library Networked Service* (Chicago: ALA, 2001).

23. Peter Hernon and Ellen Altman, *Assessing Service Quality: Satisfying the Expectations of Library Customer* (Chicago: ALA, 1998).

24. *Perspectives on Outcome Based Evaluation for Libraries and Museums*, 19.

25. Ibid., 23.

26. Ibid., 3.

27. Durrance and Pettigrew, "Toward Context-Centered Methods for Evaluating Public Library Networked Community Information Initiatives"; Joan C. Durrance and Karen E. Pettigrew, *Online Community Information: Creating a Nexus at Your Library* (Chicago: ALA, 2002).

28. Durrance and Pettigrew, "Toward Context-Centered Methods for Evaluating Public Library Networked Community Information Initiatives"; Joan C. Durrance and Karen E. Pettigrew, *Help-Seeking in an Electronic World: The Role of the Public Library in Helping Citizens Obtain Community Information Over the Internet, Final Report* (Washington, D.C.: Institute of Museum and Library Services, 2001); Durrance and Pettigrew, *Online Community Information*.

29. Reijo Savolainen, "The Sense-Making Theory: Reviewing the Interests of a User-Centered Approach to Information Seeking and Use," *Information Processing and Management* 29 (1993): 13–28; Bishop et al., "Socially Grounded User Studies in Digital Library Development."

30. Brenda Dervin, "From the Mind's Eye of the User: The Sense-Making Qualitative-Quantitative Methodology," in Jack D. Glazier and Ronald R. Powell, eds., *Qualitative Research in Information Management* (Englewood, Colo.: Libraries Unlimited, 1992), 61–84; Reijo Savolainen, "The Sense-Making Theory: Reviewing the Interests of a User-Centered Approach to Information Seeking and Use," *Information Processing and Management* 29 (1993), 13–28; Durrance and Pettigrew, "Toward Context-Centered Methods for Evaluating Public Library Networked Community Information Initiatives."

31. *Perspectives on Outcome Based Evaluation for Libraries and Museums*, 4.

32. B. Dervin and K. Clark, *ASQ: Asking Significant Questions: Accountability and Needs Assessment Tools for Public Libraries: Technical Report*. (Belmont, Calif: Peninsula Library System, 1987).

33. Mary Kay Chelton, Roberta Brody, and Donna Crosslin, "The Adoption Searchers' Use of Libraries: A Pilot Descriptive Study," *Reference & User Services Quarterly* 40 (spring 2001): 264–74.

34. Joan C. Durrance and Karen E. Pettigrew, "Community Building Using the 'Net: Perceptions of Organizers, Information Providers, and Internet Users," Conference of the Association of Internet Researchers, Lawrence, Kansas, September 14–17, 2000.