

# **eChicago 2007**

**Kate Williams, editor**

**Proceedings of the inaugural eChicago symposium  
held at Dominican University, River Forest, Illinois, April 20, 2007  
A Dominican University Graduate School of Library and Information  
Science monograph co-published with the University of Illinois  
Graduate School of Library and Information Science**

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## Preface—Cheryl Johnson-Odim\*

The city of Chicago has been a laboratory for research for the 20th century. These proceedings help us to understand how this tradition is continuing into the 21st century.

As the Provost of Dominican University it is my responsibility to guide the academic life of an institution of higher education in metropolitan Chicago. In this capacity, I am pleased to introduce these proceedings for three reasons: First, community informatics is a vital part of the curriculum in our Graduate School of Library and Information Science. Second, as the annual eChicago Symposium becomes a cooperative project with the University of Illinois at Urbana-Champaign it affords us a collaborative, multi-institutional, model for research and teaching. And third, we look forward to an annual forum for research and policy debate about community involvement in and uses for information technology.

I particularly appreciate community informatics because the study of under what conditions technology can serve local communities is very much an expression of Dominican's mission in the 21st century. Our mission is to pursue truth, give compassionate service and participate in the creation of a more just and humane world. Computers aren't a choice anymore—they're part of our social infrastructure. The new methodologies for gathering, analyzing and disseminating information have the potential to increase democracy, or, badly used, to increase the divide between those who govern and the governed, between the democratization of decision-making and the creation of a small class of decision-makers.

And what so many of the speakers here point out is that the social site of computers is the hard part today. Not the hardware or the software but the use and the usefulness of computers. Our computer science majors already do an engagement project in serving community organizations, thanks to a program run by Professor Cyrus Grant, and he reports that it is hard for them to leave the organizations when they're finished—computers in the service of community is a pretty exciting mission. And in so many ways it doesn't take a computer scientist to help others use computers these days, it takes the skills of critical thinking and research.

From our perspective at Dominican not only does community informatics, as practiced here with eChicago, fulfill Dominican's mission, it addresses each of the four pillars of our academic priorities: civic engagement, interdisciplinary/integrative studies, global citizenship and research.

Research is addressed because not only do we imagine what eChicago can become, but we enhance our investigative skills as we work together to gather and analyze information. Our interdisciplinary goals are advanced as eChicago engages our social work faculty, our library faculty, our computer scientists, even our fashion faculty as they study community craft economies. Civic engagement is increased because we partner with Chicago's communities in various projects such as those described above. And finally, global citizenship is learned because every ethnic group across Chicagoland is using computers differently—people are looking for information in their native language, diasporas are communicating online across the city and the world, Chicago's

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\* **Cheryl Johnson-Odim** is the Provost and Vice President for Academic Affairs at Dominican University. (cjohnson-odim@dom.edu)

hiphop scene is posting music and videos on YouTube. Citizen journalists are blogging and vblogging. Citizen scientists are collecting data in order to make the case for reforms to protect their local environments. These processes have just begun and as we carry out community informatics and integrate them into our scholarship and service learning at Dominican, our students will be in front of a wave that will carry them into leadership in their chosen professions and full citizenship in their chosen communities.

Technology is something we can only learn together, as a social transformation of our teaching, learning and living. The talks in this proceedings show me that community informatics is a way for all of us to cross the digital divide. It's about technology use in our day-to-day lives, but it is also about lifelong learning. When it comes to being able to make computers and the internet serve all of society, we may not have it all together, but together we can have it all. I'm very proud of Dominican, especially our Graduate School of Library and Information Science, for initiating the eChicago Symposium, for documenting it in this volume, and for planning next year's gathering. I hope to see you there.

## Foreword—Joan C. Durrance\*

I am delighted to have the opportunity to write a brief foreword to *eChicago 2007: Proceedings of a Symposium held at Dominican University*. This conference and its resulting papers stirred up in me a powerful memory of a Eureka moment that occurred in my life when as a thirty-something professional I attended a conference in Chicago at Rosary College, as Dominican was then known. It was the early 1970s—memories of the urban riots of the 1960s were still fresh in our memories, those urban riots across America that called attention to the painful conditions associated with inner city poverty.

The conference that I attended at Rosary, now Dominican University, was organized by a visionary young faculty member at Rosary's library science program, Linda Crowe. Linda brought together a small group of visionary professionals and academics who had found that librarians could provide more effective responses to the plight of citizens who lived in urban communities. " It was Kathleen Weibel who helped connect me with Linda Crowe and Rosary. That long ago Rosary conference showed those who came that if librarians used their skills to develop information and referral approaches—first by creating relevant community information files and then by learning how to conduct more effective communication interviews they could become more relevant (and helpful) to their community. Linda and Carol Kronus had developed librarianship's first community information conference, "Libraries and Neighborhood Information Centers," at the University of Illinois Allerton Conference Center a year or two earlier. Both conferences brought together pioneering leaders in community information (now community informatics) who inspired me and the other participants at Allerton and Rosary and helped us to see why it was essential for libraries to increase access to community information that people needed in their daily lives.

That Rosary conference decades ago resonated with my own experience both as a librarian and a community activist. Frequently I had been stymied by how difficult it was to get and to use community and local government information that I and many, many others needed to solve problems. Then librarians who were able to organize the world's knowledge were clueless when it came to identifying and organizing information about their communities because their focus was on their collections rather than their communities. That conference increased my resolve to devote my career to helping others gain the knowledge and skills needed to increase access to community information and to more effectively listen to users. As I approach my retirement years I look back with satisfaction that my work has helped to keep alive in others the excitement that I felt at Rosary in the early 1970s.

Likewise it is clear to me that those two early community information conferences at the Allerton and at Rosary influenced others as well. While not everyone in the library world learned the community lesson, librarians and academics who ventured into the new territory of community information in the 1970s prepared the way for libraries to make much more significant contributions in their communities in a variety of ways—such as information and referral services (I&R), literacy programs, job and career centers, and

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\* **Joan C. Durrance** is the Margaret Mann Professor of Information at the University of Michigan School of Information. (durrance@umich.edu)

services to immigrants. Looking forward, I am assured that Kate Williams and the visionary folks she has brought together at this historic eChicago conference have not only built on the pioneering work of those long ago conferences, but I am also assured that they will be carrying it to new heights as they focus on the community's adoption of information technology.

Kate has placed the focus of this eChicago 2007 conference, correctly, on bringing leaders from various groups and organization together to facilitate community in the digital age. The mix of representatives from local and state government, libraries, community and ethnic leaders, and academics underscores the conference vision—a focus on e-community must start with a diverse representation—first the people, then the tools that can foster digital inclusion.

Like Linda Crowe (now director of the Peninsula Library System in California), Kate Williams is a visionary. And she has brought together a group of superb visionary leaders to identify and discuss today's key information technology issues and challenges. While technology has been a key subtext, it did not stifle discussion of big ideas and policy questions such as diversity, social transformation, digital citizenship, civic intelligence, values, roles, the meaning inclusion, quality of life, and intended and unintended consequences. Presenters raised and reminded each other of the Big Questions that must be considered when adopting community information technology—such questions as: can leaders anticipate and deal with both the possibilities and the limitations of information technology (IT) adoption, how do IT visionaries simultaneously think bigger AND smaller so as not to leave part of the community behind, what roles can libraries and community media best play in communities, how can technology be used most effectively to build and nurture coalitions, and will IT create dynamic rather than static spaces for socio-political discourse?

This conference and the promise of others like it has introduced and discussed key problems and issues that must be dealt with not only in Chicago, but across our increasingly smaller world. The questions raised and pondered here must be addressed in every community. The challenges presented at this conference must also be addressed by leaders in communities that seek to use technology to help build community. The future isn't clear, but the principles addressed here will help communities avoid the sustainability pitfalls never adequately addressed by euphoric community network enthusiasts just a decade ago.

This conference and the work Kate Williams is undertaking at the University of Illinois GSLIS' legendary Community Informatics Initiative led by another visionary, Ann Bishop, has already begun to make its mark on this community. It's interesting to imagine that 30 years or so from now someone will look back on the influence of the synergy brought together by the leaders gathered together at Dominican on April 20, 2007. Over the years this conference will also influence the lives not only of its leaders and those who came and discussed, but also those who hear of it only through its proceedings.

## Introduction—Kate Williams\*

It is a pleasure to introduce this written record of the first eChicago symposium, conceived at Dominican University in the spirit of 21<sup>st</sup> century *Caritas et Veritas*, as Cheryl Johnson-Odim writes here. Fortunately, many of the ideas embedded in what Joan Durrance identifies as our predecessor conference in 1972 are available free from an online repository (*Libraries and neighborhood information centers*, edited by Linda Crowe and Carol Kronus, <https://www.ideals.uiuc.edu/handle/2142/1552>). Would that readers could go back just as easily to another moment in Chicago intellectual history: the 1920s and 1930s when the field of urban sociology emerged at the University of Chicago, for that is another root of the meeting that we held in April 2007.

As with eChicago, the Chicago sociologists were concerned with the spatial ecology of the city, with the local institutions that give structure to the city and the neighborhoods, and with the ethnic communities. They posed questions regarding community in industrial Chicago, while the questions at the eChicago symposium concern community in informational Chicago. The urban sociologists conceptualized the city of Chicago as a set of spatial zones which provided concentrated space either for workplaces or for residences, the latter generally segregated by ethnicity and class. These zones have shifted over time, as subgroups have moved (or been moved) either closer or further from the center. Today we are trying to understand the additional dynamic of cyberspace. This includes actual spaces, virtual spaces, and even zones which are both, our networked coffee shops, city plazas, libraries, campuses and residences.

The urban sociologists studied new social formations: the city hotel, the gang, the street corner hangout. Today we study the community technology center, the public access terminals in the library, the online communities. The urban sociologists studied nation (ethnicity) and class: the European ethnics and the African Americans, the Marginal Man. Today we study the digital divide and the digitization of cultural life and cultural heritage.

For perhaps one half-century, Chicago has experienced the information revolution. Like everywhere, it first took hold in the military, research, and corporate sectors. As it diffused through the economy, the sustainability of the economy began to depend on bridging the digital divide in the marketplace, in education, health, and civil society generally. Thus the Commerce Department took the lead in facing up to the challenge in 1994, launching surveys with Census Bureau and offering funding to local communities through the Technology Opportunities Program. Since the rollback of federal support, local and state governments (and civil society in general, beyond the lucky recipients of the TOP funds) are searching for successful and affordable models for community in the digital age. Thirteen plus years of social experiments drew the attention of researchers, who often threw their resources into the efforts, and began to write up the

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\* **Kate Williams** is assistant professor at the University of Illinois Graduate School of Library and Information Science where she teaches and carries out research regarding how local communities use information technologies. Her current projects focus on how Chicago's local, historical communities are using technology—thus eChicago—and on the rich legacy of the U.S. Technology Opportunities Program, using the concepts of social networks and social capital. Until August 2007 she was on the faculty of the Dominican University Graduate School of Library and Information Science. (katewill@uiuc.edu)

results. Thus we are presented with community informatics: a small academic field with a long name that often draws on theory and methods from other older disciplines: community informatics. Those working in the city rather than the campus call themselves digital activists and cyberorganizers, or local officials, social workers, and librarians. Community informatics, though, much like the urban sociologists in 1920s Chicago, aims to sum up and give back to society the biggest possible lessons about how to sustain community, and with it democracy, when the basic tools of society have changed qualitatively.

This volume helps to widen the horizon of community informatics geographically. Seattle is already known as the home of the Seattle Community Network and the city's Technology Healthy City program; its economy is driven by a leading software company. Austin has shared its experience with the Austin Free-Net and its leadership of statewide initiatives; its economy is also based in high technology. Blacksburg (Virginia) and "Netville" (Ontario) are the product of commercial and university experimentation. eChicago shifts the focus to multiple projects across a more typical, post-industrial metropolis. It also brings us back to a landscape like one of the earliest sites of innovation, Cleveland and its 1984 "St. Silicon's Hospital and Information Dispensary," which became the Cleveland Free-Net. And eChicago is also itself a research trajectory, as we researchers make use of the vast city as a laboratory, examining experiments already underway and participating in new ones.

eChicago includes eleven speakers, five people summing up in the last session, and three people who reflected on the day after the fact. First of the eleven presenters was Doug Schuler, who brought lessons from 25 years of work on community technology in Seattle: that community is the leading concept, that social change is a core goal, and by the examples of Seattle Community Network and DIAC, some projects take years to unfold. Nancy John agreed that community technology was about the people, that technology is secondary, and then brought examples of how librarians and others at the University of Illinois at Chicago took the initiative to share the technology knowledge on campus with the surrounding community, building websites early on for public institutions and now working with to digitize unique local material.

Kathryn Clodfelter analyzed the past and current life of Indiana's 30 community networks and uncovered how unresolved tensions between grassroots and elite stakeholders prevented some projects from becoming self-sustaining, while elsewhere local institutions (including libraries) are assuming responsibility for community networks. Karen Mossberger examined digital citizenship – participating in society online, using the internet adeptly, daily—and found that digital citizenship is less common among African Americans and Latinos, even among younger adults (despite evidence of keen motivation and effort in using the Internet) and that spatial isolation of these communities helps to explain this. But at the same time, local strengths in the shape of local social networks help people use and learn information technology. Sal Rivas took apart the idea that most Americans are online, pointing out that African Americans and Latinos are 1/3 as like to have computer at home, are less employed so less online at work, and Latino immigrants may not be aware of community resources like public access computers at the library, and presented past and present ideas as to why this difference persists.

Amy Kerr reported on evaluations of two Chicago technology projects, where they learned how critical it was to start with community buy-in and they uncovered that community computer labs call for different kinds of support at different stages of development, and called for more communication across such projects and between researchers and community projects. Adrian Kok pointed out trends among older Americans and how computer training has drifted away from successful approaches tailored to this population, and advanced the idea of incorporating social workers into planning computer training and other digital including initiatives. He also demonstrated how the Chicago Digital Access Alliance policy principles could inform his research—exactly the type of outcome hoped for with eChicago!

Diane Velasquez reported her findings that public library internet users are different than the patrons who come to check out books. And that rural Americans often only have internet at their library. The public library has become a technology center, with wireless internet and with desktops, with the facilities to print out critical government forms that are not available otherwise. This is stretching and straining libraries but what it means is that more people are more reliant on public libraries than before, and more policymakers need to understand this.

Paul Adams provided an update on Prairienet in Champaign and east St Louis, Illinois and in Sao Tome off the West African coast. They are giving away computer labs built in a course; training secondary school students to repair/rebuild computers, and working with a local community theatre operated by young people. Frances Roehm reported from SkokieNet and SkokieTalk, operated out of Skokie Library. This project, operated by her as staff with a network of volunteers from preteens to seniors, maintains an online news, information and communication facility for and about Skokie, and builds connections for her library. SkokieNet/SkokieTalk ties people to the local library, but also helps the library know the issues and interests of the community so it can respond with library programs, policy, and online dialogue. Harold Lucas reported his work providing an online information hub for heritage tourism in Bronzeville; part of this is an online map that points to 700 landmarks in the area. Local students have taken up the cause of saving the house where Lorraine Hansberry's family broke the color barrier and waged the successful battle (related in *A Raisin in the Sun*) to outlaw restrictive covenants, the real estate clauses that blocked African American ownership, and all this activity is advanced by use of computers and the internet.

The eChicago Symposium proved the viability of our method: start from library and information science and spirit of the the “i-schools”; network across many disciplines; and connect with policymakers and activists. Our home institution was a graduate school of library and information science, where faculty and students are already grappling with digital forms and local realities in preparing graduates to work in public (and other) libraries. Our graduates are the generation of librarians that will enable and implement community in the digital age. While Dominican University is not officially part of the i-school movement across the library schools, the relationship between people, information and technology—the explicit focus of the i-schools—has in many ways moved to the center of Dominican's curriculum.

We partnered across both of the state's library schools and across disciplines beyond library and information science, because our field is small and our tasks are shared. Sociology, urban planning, social work, and social psychology were represented

on the panels. We aimed to form a network of researchers who could build on each others work rather than remain isolated.

We teamed up with the activists and policymakers for two reasons. First, we aimed to support their growing network and thus their effectiveness at implementing reform and community change. Second, we need to keep our research real, vetted by real world experts—to learn the right questions to ask in our research, to test our findings.

This volume should be used in the growing number of community informatics courses at library and information schools; in research by community informatics scholars and any others studying local community, including but not limited to Chicago. The ideas and experience of community informatics can be seen as the hub of a wheel forming the study of the local community in the 21<sup>st</sup> century, as in the graphic below.



We have gathered up in this volume a great deal of knowledge from the city and the campus, and with that knowledge, as the speakers make clear, a democratic and inclusive future is possible. Please enjoy this volume, and join us at the second eChicago Symposium in April 2008.

# Part 1: Conference program and presentations

## *eChicago Symposium program*

# eChicago

Understanding and Implementing Local Community Use of Information Technology  
A Dominican University GSLIS Symposium Friday, April 20, 2007  
7900 Division Street, River Forest, IL <http://www.dom.edu/eChicago> [echicago@dom.edu](mailto:echicago@dom.edu)

- 8:30-9 Registration and coffee outside Martin Hall, first floor of Fine Arts
- 9-10:15 [SESSION 1] **Kate Williams**, Symposium chair  
Welcome from **Donna Carroll**, President, Dominican U  
Keynote: "Twenty-five Years of Community Technology: Lessons Learned for Libraries and Local Communities," **Doug Schuler**, Evergreen State College  
Respondent: **Nancy John**, U of Illinois at Chicago  
*Martin Hall*
- 10:15-10:30 Coffee break
- 10:30-11:45 (Breakout sessions) Research: What do we know? What do we want to know?
- |   |  |
|---|--|
|  <i>In Martin</i> [SESSION 2]<br><b>Kathryn Clodfelter</b> , Indiana U<br><b>Karen Mossberger</b> , U of Illinois Chicago<br><b>Salvador Rivas</b> , U of Wisconsin<br>Chair: <b>Ed Valauskas</b> , Dominican U |  <i>In Springer</i> [SESSION 3]<br><b>Amy Kerr</b> , Loyola U<br><b>Adrian Kok</b> , Dominican U<br><b>Diane Velasquez</b> , U of Missouri<br>Chair: <b>Susan Strawn</b> , Dominican U |
|---|--|
- 11:45-1 Lunch provided  
*Lewis Social Hall*
- 1-2:15 [SESSION 4] Practice: What are local communities doing? What do we want to do?  
**Paul Adams**, CTCNeT/PrairieNet  
**Fran Roehm**, SkokieNet/Skokie Public Library  
**Harold Lucas**, BronzevilleOnline  
*Springer Suite 002/003*
- 2:15-2:30 Tea break
- 2:30-4 [SESSION 5] Understanding and implementing: What have we learned today? What are next steps?  
**Tracie Hall**, Dominican U  
**Ann Bishop**, U of Illinois Urbana/Champaign  
**Doug Schuler**, Evergreen State College  
**Charles Benton**, Benton Foundation  
**Susan Roman**, Dean, Dominican U GSLIS  
*Springer Suite 002/003*

# eChicago

How are local communities entering the digital age? What are local people and organizations doing with computers and the Internet? Are communities stronger as a result? What changes are afoot, ushered in by policymakers or others?

The one-day eChicago symposium will focus on the process of local communities entering the digital age. Like every other social sector, the community sector is grappling with new tools and new information flows. Community-based institutions and social networks are challenged, especially because of the attendant costs, but they are also sites of innovation. What lessons can we share with communities? What lessons can we learn from communities?

Chicago is our geographic focus. As a global city rich in ethnic and immigrant communities, many of which participate in their own digital diasporas, Chicago has the opportunity to set the pace for other cities when it comes to digital inclusion. Combining forces across universities, libraries, local and state governments, and communities can only speed this process.

On April 20, practitioners will be sharing what is happening in and near Chicago; researchers will be sharing results of studies done across the Midwest; and everyone present will be called upon to share their thoughts about what the future might hold. In addition to resulting in a published proceedings, the symposium is expected to become an annual event attracting local policy makers and practitioners as well as scholars from Chicago, the Midwest, and beyond.

## eChicago at Dominican

eChicago is a particular research, teaching, and service interest at Dominican University. In addition to hosting an annual symposium, our library and information science school teaches LIS 758 Community Informatics, which examines theory and practice by looking at the literature and at Chicagoland itself. LIS 769 Research Methods also touches on community informatics. Research activities include: studying seniors, social workers, and computer instructors to find out whether and how interdisciplinary efforts can inform computer literacy efforts; measuring and analyzing wireless access in several Chicago community areas; archiving and analyzing the records of the Department of Commerce's Technology Opportunities Program; and piloting a project called Digitizing Ethnic Chicago, which consists of partnering with local organizations to help digitize their collections and widen access and use. For more information, please contact Kate Williams.

## Getting online today

The Cybercafe's networked computers (outside Springer Suite) are at your service, username "guest," password "dominican." For wireless access instructions, see page 8 of this program, or consult conference staff.



Sankofa: an Adinkra symbol for learning from the past, or "go back and get it." The Adinkra symbol system originates in what is now Ghana.



Mate Masie: An Adinkra symbol for understanding, listening to others, or "two pairs of eyes are better than one."

## ***President's Welcome—Donna Carroll\****

Library and information science has been a core discipline at Dominican as far back as 1925 when this campus was initially established. The discipline has grown and changed and reshaped itself with the times and the demands. What is particularly exciting about this symposium is that it does represent that sort of continuing, organic shift. What's also exciting, at least for me, and I think I speak for those from Dominican here in the room, is that the conversation about community influenced by technology really resonates with the heart of our mission and our disposition here at Dominican to be involved with the community and fully engaged. It's exciting for me that we're hosting this symposium today because it's not only a statement of the forward view of a particular school but I think at its heart it's a statement of who we are as a university. I thank Kate Williams for her leadership, Susan Roman and all those who have been involved.

As the president, I can't avoid the opportunity for a two-minute commercial so let me tell you about Dominican University and provide you with a context in which to experience your day. We are a comprehensive teaching university of about 3,200 students, on our way to 4,000 students. We are in the midst of a ten-year strategic planning window. We're about to start the last year of a five-year operating phase and then begin a new operating phase. We aspire to be a premier Catholic comprehensive teaching university of 4,000 students by 2012.

There are three signatures to the current strategic window for Dominican and we're proud of them and I share them with you. Number one, I hope as you were driving around campus that you noticed Palmer Hall. That is a 125,000-square-foot new academic building devoted substantially to the sciences which will also house our school of education and provide wonderful teaching space—air conditioned and high tech—for all of our disciplines. In addition, recently the university was delighted to receive a significant gift and was able to name our school's business school so we are now the

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\* **Donna M. Carroll** is the president of Dominican University, a comprehensive Catholic university of 3250 students located ten miles west of Chicago. As the first lay (external) president of Dominican, appointed in 1994, Dr. Carroll has experienced firsthand the challenges and satisfactions of transforming an institution, and she is actively engaged in issues of strategic planning and fund development. She is currently a trustee of Fordham University and Catholic Theological Union and serves on the boards of the Association of Catholic Colleges and Universities, and the Council of Independent Colleges. In addition, she is a director of Rush Oak Park Hospital and Oak Park Development Corporation and Vice President of the Business and Civic Council of Oak Park. Dr. Carroll brings substantial management and organizational development experience to her role as president.

It was during Dr. Carroll's tenure as president that Rosary College changed its name to Dominican University. Enrollment has doubled since 1994. The operating budget is approaching \$50 million and donations to the University now average almost eight million dollars annually. In the context of a well-orchestrated strategic plan, Dominican University has introduced sixteen new academic programs, six new degrees and two additional schools, currently offering coursework at seventeen locations throughout the Chicago area, in neighboring states, and abroad. In 2002 the university completed a \$30+ million capital campaign, and a new larger campaign already is underway. President Carroll came to Dominican University from New York City where she served as Secretary of the University at Fordham University. Prior to her position at Fordham, Dr. Carroll was the Senior Vice President, Dean of the College and Dean of Students at Mount Vernon College in Washington, D.C. In addition to the above board affiliations, she has served on other national, corporate and statewide boards including, TCF Bank, University of Scranton, the Cook County Commission on Women, and Fenwick High School. (dompres@dom.edu)

Edward and Lois Brennan School of Business of Dominican University. Those of you in graduate professional education know the implications of that. And third, we are in the feasibility phase for our first Ph.D. program. So the institution, like the discipline of library and information science, is shaping and reshaping itself according to the needs of our students and the community.

At our core there are really four pillars that drive our education. One is study, rigorous study. The second is faith. The third is service and the fourth is community. I can't think of a more appropriate place and time to have a conversation about community informatics which I view as evolving out of volunteerism and service learning and now into a more technological context for participating in the community. I thank you for coming to the first annual symposium. I am aware of the work that went into developing this symposium so I'm confident it will be an exciting day; the more you participate the more exciting it will be for you.

## ***Too Early for the Brandy and Cigars: Twenty-five Years of Community Technology: Lessons Learned for Libraries and Local Communities—Doug Schuler\****

Soon after I arrived last night I noticed somebody wearing a “radical militant librarian” button. Hopefully that person is attending *this* event. At any rate, I thought it was a pretty good omen.

I want to thank Kate for inviting me and everybody who helped organize this conference. For this presentation I prepared fewer slides than usual but since each one is longer than usual there’s probably about the same amount of loose stream of consciousness all together. Actually, Kate suggested “Twenty-five years of community technology lessons learned from libraries and local communities” as a topic. My first reaction was that it made me sound uncomfortably similar to the old timer past his prime who’s been invited to nostalgically reminisce about days gone by. I was reminded of a chapter called “Brandy, Cigars and Human Values” in Langdon Winner’s excellent book *The Whale and the Reactor*. There’s a scene after dinner at some intellectual retreat in which some guy with a long beard says, over brandy and cigars, “You know, I think we should think more about human values in our work.” He’s retiring from the field, perhaps to write his memoirs. Then he basically says, “I never really gave human values any thought in my work but maybe you guys should.”

First of all, I’m not ready to be at the end of my career — such as it is or was. So, alluding to Langdon’s chapter I thought I’d call my talk “*Too Early for the Brandy and Cigars*.” Hopefully there will be time for reminiscing later. Here’s a quote from Langdon’s chapter that goes right to the heart of the challenges before us:

A great many people, including some with considerable social power, seem to have lost the ability to link the specific, concrete conditions of their own work to any reasonable conception of human well-being. The question just never seems to come up. To remedy that would require a fundamental change in orientation for many organization, vocations, and

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\* **Doug Schuler** is a former chair of Computer Professionals for Social Responsibility (CPSR) where he directs the Public Sphere Project. He is also a founding member of the Seattle Community Network (SCN). He is a faculty member (Evening and Weekend Studies) of The Evergreen State College where he teaches and learns about technology and social implications of the network society. Doug has written several books and articles, including *New Community Networks: Wired for Change*. His recent books include *Shaping the Network Society: The New Role of Civil Society in Cyberspace* (MIT Press) and *Community Practice in the Network Society: Local Action/Global Interaction* (Routledge) both co-edited with Peter Day) and *Cyberculture: The Key Concepts* (co-edited with David Bell, Brian Loader, and Nicholas Pleace). His most current book which will be published in Spring, 2008 is *Liberating Voices: A Pattern Language for Communication Revolution*, a catalog of contemporary intellectual, social, and technological innovations, a practical manual for citizen activism, and a manifesto for creating a more intelligent, sustainable, and equitable world.

For over 20 years Doug has been engaged with issues relating to society and computing, as an activist, practitioner, educator and researcher. He has worked on many CPSR projects including all eight of CPSR’s biannual symposia on the “Directions and Implications of Advanced Computing” (DIAC) conferences, which provide a public forum for social implications of computers. Doug is currently the program director for CPSR’s Public Sphere Project. Doug has given presentations in Africa, Asia, Europe, and South and North America on democratic technology issues. (douglas@cpsr.org)

professions. We encourage people to become competent in a particular professional field, especially those concerned with inquiry into natural phenomena and the manipulation of material reality. At the same time we allow a scandalous incompetence in dealing with the fundamental, recurring questions of human existence: how are we to live together? How can we live gracefully and with justice? Questions of this nature are not, as some teachers like to tell their students, "soft" ones as compared to the "hard" research questions of science. They are as "hard" and as challenging as any that science could hope to tackle.

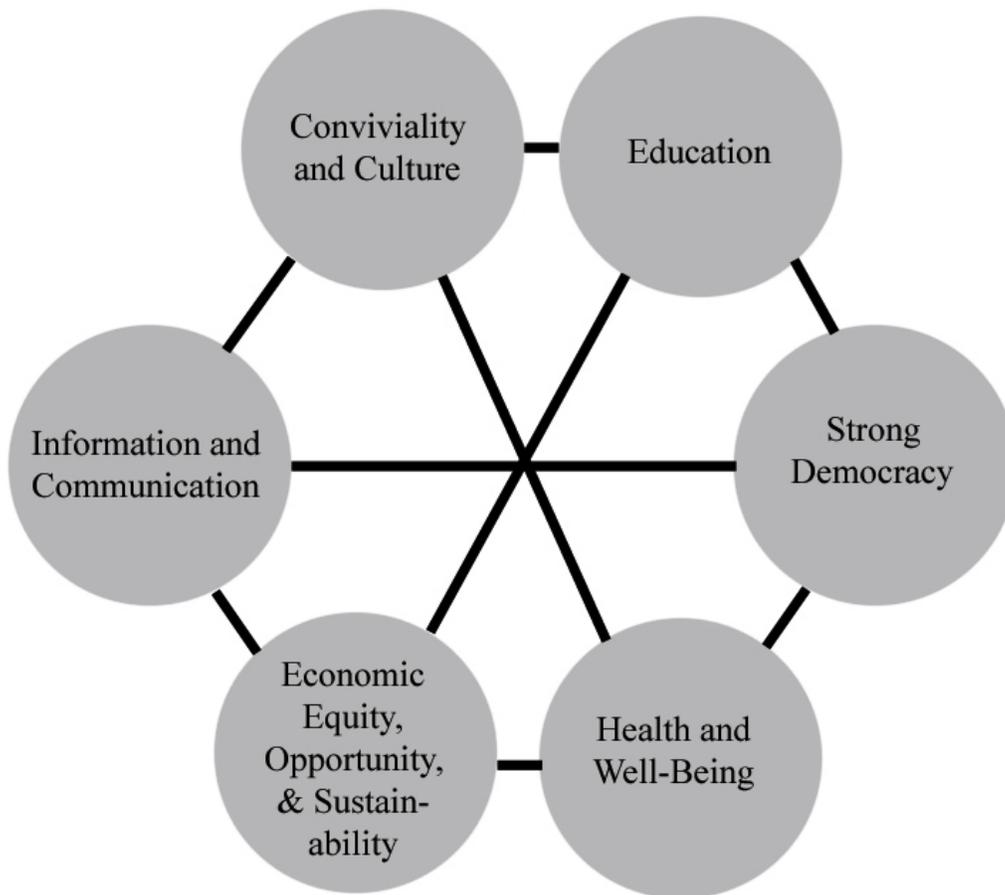
Langdon has put his finger on a fundamental problem of our time: the all-too-common view that the only thing people need to do is do *their* job (and *only* their job) and things will ultimately work out. I don't like to characterize our era in apocalyptic terms but I think the characterization is unavoidable. There are so many emergencies that are just waiting to happen and humankind (including many people who are nominally in charge) seems to invariably pick the wrong things to do. Starting wars as a way to bring about peace always pops to the top of the list in my mind but there are many others. At any rate librarians have critical roles to play – and these roles go way beyond the traditional narrow views of what a librarian is. This is the time, as a matter of fact, when we especially need “radical militant librarians!”

## **A Dozen Lessons Learned**

Kate asked for my thoughts on what lessons I think that I or we have learned. I think I've learned quite a number of lessons but it may be the case that some are merely biases that are periodically re-confirmed. I have scads of prejudices that I just haven't been able to shake and so maybe it's not the case that I've learned the lessons. So — fair warning — this list includes lessons learned with a fair number of personal prejudices that I'm too stubborn to abandon sprinkled in. It also includes important ideas that are still valid, including ones that may seem obvious.

## **Social Change is the Goal**

The first lesson is the social change aspect of our job must be kept prominent. It's not the time for social system maintenance or business as usual. It has been frustrating to see that in academic and many other professions, there's a lot of ideology — often implicit — that says you shouldn't pay attention to human values or doing the right thing, that all we have to do is follow the rules and good things will come out of it. This is the idea that social benefit occurs through side-effects. This approach is overrated (to say the least). One of the most prominent rules in this country is that the "free market" trumps everything else — including democracy. It's the idea that business should never be regulated. We get the government out of everything and then *presto*, everything is changed for the better. It's wrong on the face of it, but that doesn't seem to prevent people from trotting it out every few years when they are defunding schools, libraries or health care. Shouldn't people actually be thinking about the problems we face and working to make things better? Please take a look at the community "core values" figure below for areas in which positive change can be pursued. In general, an increase in any core value (education, strong democracy, etc.) can increase the others.



### **Diagnose Social and Environmental Ills**

— and work to address them. I believe that everybody needs to be concerned about what’s not working, since, in name at least, the country is a democracy and that democracy requires citizen input.

### **Encourage People and Organizations to do their Best**

Even when they don't want to! It doesn't mean you can vote every four years and elect someone who may or may not become established and in the between time you can forget about it. When someone is in the White House it doesn't mean, for example, that that person is not subject to the rules of the land and it doesn't mean that our own responsibilities evaporate. I think a lot of librarians realize that they are key in this struggle. They're fighters for freedom of the press, freedom of expression, freedom of assembly. It's their job and they want to inform people. You can't make that claim about a lot of institutions. Not that I'm picking on the Bush Administration but they occupy the

White House right now. One of the first things they did was declare that everything they had written down was secret. George Jr. even said, “Those papers that my father wrote while he was president should be secret, too.” That’s counter to how one might think a democracy would operate. These are things we need to be concerned with.

### **Develop Interesting Projects**

Interesting projects aren't just only about developing interesting projects. These efforts provide volunteer opportunities and they can build community. When it comes to developing interesting projects, my experience has been that if you keep working on them, people will ultimately come and help out. I’m not necessarily saying the money will come, but the people will and you can get things done one way or another. Without these interesting projects, people might not get involved. I think we need to always be innovating.

### **And Speaking of Community, it's Essential!**

This idea of community comes up again and again. When Kate was in Seattle last time, I mentioned how crucial our community is to me. It's certainly a lot more than providing academic review. Nobody wants to be cut off from their community. Everybody needs to collaborate with people who share the same values and concerns. The Prometheus Radio Project has developed a very creative "barnraising" project in which they partner with a community group to actually help built their own community radio station — sometimes including the physical building. This seems like a fantastic way to integrate community building into their activities. Community is something we can never let go. It’s not just a matter of technology. It’s not just a matter of information. It's impossible to precisely define community but it's absolutely critical. It needs to be integral to our work.

### **Leverage Each Others' Work**

The idea of leveraging each other’s work is very important. First, it gives us an opportunity to stand on the shoulders of giants. Second, nothing in the area of social change will happen because one person or organization made it happen by themselves. We don’t have the resources of a Google or a Microsoft. It is a matter of thinking smarter.

### **Big Tents are Useful**

Another useful concept is that of the big tent. The "big tent" is a physical (or other) gathering or organizational focus that is organized thematically, not be academic disciplines or job descriptions. Everybody who's interested in the theme can get involved. The opportunities for learning in this setting and for launching future collaborations are much greater. This is the opposite of trying to specialize in narrower and narrower ways. You’re always expanding your area of inquiry, which is exactly what’s happening in this conference. You’re trying to invite lots of people in from different perspectives. It's a much richer way to my mind to explore something than to say, “You’re not from the right

department so you can't come. Or sorry you're from a different academic discipline." We need to dispense with all of the arbitrary ways that you can narrow things down.

### **Focus on Broad Objectives, Not Technology or Other Narrow and Transient Areas**

This fosters forward motion and vitality. Something that I've noticed about organizations — or, at least the ones I've been involved with — is there are often one or more persons who are very proficient feet draggers. I was surprised to learn how much time people will spend talking about what not to do! They want to look at your mission statement and say, "That's too broad, let's scale it back" or they want to look at how things are done today and say, "That's the way we have to do things forever." It drives me nuts as it's a formula for auto-fossilization. I really don't know what to do about it except to be wary of it and keep pushing forward!

I find the attitude I'm talking even more damaging when I look back over the last twenty-five years, which have been an era of rapid change. If you started twenty-five years ago and said, "I'm going to give everybody an 120 baud modem so they can go to their bulletin board and watch the characters go across the screen, one every two seconds," that would have been an outmoded approach. I would talk to people at the Seattle Community Network and I would say, "What about wireless?" The response would be, "No, our job is to do land-based things with wires connected." I would think, "Why do you limit yourself like that?" People say that people in the Roma community were very skilled and engaged as horse traders: they've been trading, buying, selling horses for years and years. When the car came along they said "Fine. We'll buy and sell cars." They didn't say, "Oh, we're out of business. We can't do anything now that there are cars."

### **Don't Give Up On Any Sphere of Activity!**

The lesson here, I believe, is that we shouldn't abandon any sphere of action or activity. I've seen this happen fairly routinely with media or technology activism. When I was a kid somebody could say, "I disagree with what was said last night on channel six and I demand my right to respond." I don't remember exactly when but I think during the Reagan administration the government said, "No, we don't need the fairness doctrine any more." I'm not personally working to bring the fairness doctrine back but if somebody comes to me and says, "I'm fighting to reinstate the idea of a citizen's right to equal TV time" I'm not going to say, "Now, listen, forget about TV. Everybody knows that the Internet is the future." This may be true but lots of people — numbering in the hundreds of millions — are still watching TV. This idea is a kind of bait and switch, where people will desert one area of focus and claim that others should do so also. "Bait and switch" is a type of fraud, where one product is proffered as the "bait" and another — cheaper — product is the one that's actually delivered. Unfortunately some organizations do this to themselves and to organizations who are doing similar work. This includes policy and technology development (even web search!) In my opinion, it's not over until it's over — and it's never over! I guess I'm a pack rat at heart and I don't throw away old issues. Many are still important and they can come back. It happens with technology issues. It happens with policy issues. It happens all the time. It's not so much that you have to do

everything but people actively deny the right of others to do something. It is said that it's not over until it's over but nothing is really over. People talk about the industrial age. Does that mean that nobody farms anymore? These new ages just really pile on top of each other and nothing has gone away.

### **Focus on *Bridging* Social Capital as well as on *Bonding* Social Capital**

On the subject of community, there's a very useful concept called social capital. It can be insular, where we're trying to help or empower people *within* a certain community. That's what Robert Putnam calls *bonding* social capital, bringing people in a community or region together more closely. I've always argued for, and we here at this conference are especially able to help with, is supporting the development of *bridging* social capital too. That's where one community works with other communities; the communities *bridge* the boundaries that separate them. It doesn't mean that the two communities merge and become homogeneous. There is no need to give up the uniqueness of their community. It means that they realize that they're part of a vast nexus of people, a dense web of humanity and nature. I've had arguments with people who say, "We are only working with the people in Seattle." I thought, well, gee, the people in Seattle, maybe right now they are in New York. Did we tear up their passport? Are they no longer persons because they are outside the city limits?

### **Civic Intelligence**

This is something that I'm not going to pitch heavily in my remaining minutes, but civic intelligence is something that we need to explore in more depth. To me it is one of the best metaphors we can use because you just can't do the same thing over and over again. The conditions change and so we need to change what we do. Civic intelligence is collective. Some of the key ideas include understand your environment, switch tactics appropriately, evaluate your process, encourage experimentation and diversity.

### **Work One Day at a Time**

Another one I'd like to touch on is work one day at a time. We're in a marathon and not a sprint. I don't like to see people get burned out. At the same time we need to realize that we have larger goals. It's just not grinding it out day to day. I think everybody in this room does believe in what they're doing, but should remember that maybe you're just not putting bricks in a wall, but that you're actually building a cathedral. We need to work one day at a time, but we need to keep our eyes on the prize.

### **Context and Opportunities for Our Work**

We all live within a certain set of circumstances that affect what we do. These circumstances have been shaped by history, geography, political system, institutional arrangements, or a hundred other factors. Some of these are extremely transient and some are more enduring. In any case we need to understand the indirect as well as the direct effects that these have on our work. The context of our work is changing. It includes the local context and the global as well. It includes indirect as well as indirect effects.

## **Indirect Effects on Our Work**

The context of our work is changing. Many aspects of this context are truly depressing. Unfortunately this is because the magnitude of the problem is so large, the trends are going in the wrong direction, and the forces of amelioration are so insignificant. Of course, the more we are demoralized by these depressing realities, the quicker and surer the degradations will be. Globalization is a reality now. I live on the west coast of the US but now one-third of our air pollution comes from China. It travels thousands of miles across the Pacific Ocean and lands on our soil and vegetation and is inhaled by people and animals. So we need to be concerned about them firing up all these coal plants, like a major new plant every week or 10 days. Another indirect effect on our work is the ever-widening gap between rich and poor. We are also living in an era of militarism, so that fear and distrust are becoming commonplace. And unfortunately, fear and distrust feed on each other; they tend to engender more fear and distrust, thus making clear-thinking less likely. What's worse is that I believe some people are trying to encourage this kind of psychological climate. Another reality we are facing is the prospect of ecocide, which means poisoning the world in which we live to the point of destroying it. That has to be part of our thinking on some level. One of the problems we face is that ecocide is possible if all hell breaks loose everywhere. Getting back to the militarism, consider how many countries in the last few years have been given the green light to develop more nuclear weapons. This was a great fear we had in the 60s and then again in the 80s and that technology hasn't gone away. On the contrary, our country is developing, I read, twenty or twenty-five new types of nuclear weapons. In a saner world we would be spending the money on something else. As I mentioned earlier, there are a number of brewing crises and these are likely to play out in a variety of unexpected and upsetting ways. Based on humankind's current trajectories, I fear that our civic intelligence will be inadequate to meet these new challenges.

## **Direct Effects on our Work**

Now I would like to talk more about direct effects. There has been a vast build out with regard to the internet and the cellular telephone network and the whole communication sphere. There's something like a million new web sites or web pages created every day. The magnitude and the speed of its growth are astronomical. Global communication has become routine. A few years ago a climber was in distress on Mt. Everest, lying in the snow, presumably freezing to death. Yet he managed to call his wife in Atlanta, Georgia on his cell phone and she got rescuers to him. The communication technology is absolutely incredible. I'm not saying that technology an end in itself because I don't believe that. Nor am I saying that we won't ultimately regret the fact that some of it was even invented. It's something that we have to work with and the opportunities that we have now will not be the same five years from now. There are definitely governments and corporations out there that would like to restrict some of the openness of the Internet, to rein it in and make it their own. I think we're deluding ourselves if we think the internet is immune to various types of hostile corporate or government takeovers. This suggestion of course runs counter to the ideology of the 90s. Then, conventional wisdom held that it was impossible to bring the Internet under control. The official slogan was "Information wants to be free." Well, information on AM

radio would like to be free too, but it's not going to be free — at least not without a long struggle. It's pretty much bought and sold by people who have slowly but surely colonized it and made it into a private, rather than a public, good.

Interestingly enough the idea of collective intelligence that we have talked about for so long has now apparently been legitimized by commercial interests. Consider the phenomenon of Web 2.0. Search for "Web 2.0" on the web and you'll see that everybody's talking about it. Generally this is seen as a way for corporations to "harness intelligence." That reminds me of the Br'er Rabbit story where Br'er Rabbit harnessed Br'er Fox and took him for a humiliating trot over to Miss Meadow's house. Is harnessing something that you'd like to have done to you? Does anybody here want their intelligence to be *harnessed*? If not harnessed, how about hijacked, decapitated, exploited, or manipulated? That's one version of *collective intelligence*, but it's not my idea of it. If I had to bet on which version would prevail, I'd probably bet on them, but hope springs eternal.

The last direct effect on our work, more on the positive side, has to do with the explosion in the use of computers by civil society. A few years ago I was quite pessimistic. The history of newspapers, television, cable TV, radio was too familiar. Media that were all sold with great fanfare to the public, were inexorably colonized — harnessed if you will — and brought down one by one. I actually am impressed when I see what people around the world are doing in this area. It really is unharnessing people's creativity and dedication and imagination and I would like all of us to be part of that because it's some kind of counterforce to the trivialization and commodification of everyday life.

## Opportunities

We have the opportunity now to define what our discipline is. I like to think that it would be engaged, reflective, principled, and action oriented. It should reflect — in Kate's words — our "collective moxie." Theory and practice have to be in there together. You don't have one without the other and that includes critique. I was talking to someone the other night about the expression "post autistic." I don't know how I feel about that term but so many disciplines do only look at themselves and only at themselves within their own terms. Economics is a prime example. There is now a movement of sorts called "Post Autistic Economics" and there's a Web site with lots of interesting essays that are trying to break out of the strait jacket that the economists outfitted for themselves. The second issue that I'd like to raise is what is the intellectual and physical infrastructure for our work? Is it just sending e-mails back and forth and putting out journals or do we need to put our own infrastructure together, and what resources would we need? The latter is inherently an interdisciplinary approach and we have this immense possibility out there. We need to develop the tools and the resources that we need. I don't feel like waiting for Bill Gates to say, "Well, I've got something and you'll have it in a few years."

One thing I keep promoting—maybe it's totally Quixotic—is the idea of public classification and research systems. This used to be something that was key to facilitating access and the librarians were in charge of the effort. Now, Google does it. Why aren't we doing it? We could have our own classification system. Google has thousands of

computers but civil society has millions of computers. There are many intriguing possibilities for us — if we choose to pursue them.

I've always been more afraid of Microsoft but Google is in control of an unbelievably vast amount of information and then they say, "We'll allow you to put your spreadsheet on-line," and what goes in a spreadsheet but money and numbers and why should Google have access to all of that? Maybe we should ask the American Library Association or the people in this room to ask Google whether they can make us some promises and prove to us that what they're doing is respecting our privacy and our freedom now and into the future.

## **Strategies and Objectives**

My father used to tell a story about the time that he and my mother were driving in an unfamiliar state. She was driving and he was looking at the map. He suddenly realized that they had made a mistake: "Donna, we have to turn around. We're going in the wrong direction." My mother's response was "But we're making such good time." The same seems to be true for society as well. If we don't change directions, we're going to end up where we're going. Unfortunately, like my mother, I think that we're making pretty good time – but often in the wrong direction. In the last century we made pretty good time if the goal was, for example, turning the entire ocean into a dead zone, a no fish zone.

There is an immense amount of work to be done. In order to build a critical counter consciousness we can't take all the cues from broadcast television. It's not going to work. I know people like to watch TV and that this is a crazy idea that people like to mock, including people in sitcoms, but we have to change our way of thinking. The following table lists some timeless strategies—they are responses to issues that I don't think will go away.

## **Towards Broad-based Positive Social Change**

- • Provide meaningful (real-world, action-oriented, accurate, and accessible) information
- • Promote education including literacy / fluency in many languages and types of languages and media
- • Refine, promote, develop, and use collaborative / deliberative systems (realizing, of course, that this is not strictly a technical problem!)
- • Provide equitable, symmetric access to information and communication
- • Work across borders (economic, geographic, technological, etc.)
- • Involve people in process as co-designers (there are lots of valid types of knowledge)
- • Build relationships, communities, institutions, coalitions, projects and campaigns
- • Invent and transform policies, technologies, and institutions
- • Integrate activism into products, jobs institutions, etc.
- • Build a critical counter consciousness
- • Evaluate and refine the process and projects. Use the idea of civic intelligence to help inform your "metacognition."
- • Support this type of work (and help provide incentives for it)
- • Increase the quality and quantity of ALL of these efforts

Part of our role as librarians and educators is to provide information that is accessible and accurate and action oriented and connected to the real world. I'm not saying that we can't use cartoons to make information more accessible or we can't put it into a soap opera or a video game but it has to happen. We can't afford to live with people that really don't know or care about anything. We need to provide equitable and symmetric access to information and communication, work across borders, involve people in the process as co-designers, build our relationships, and integrate activism into what we do. I'm pushing this idea of civic intelligence and part of being intelligent is having to change how we think. We don't have to keep thinking the same way. We can change it.

Good luck and best wishes for eChicago. May it be fruitful and spawn many eCommunities!

## ***Discussant—Nancy John\****

It's a tough job to follow up someone of your stature and experience and I spent a lot of the past week asking myself what is it that I know about community networking that would be useful to say. By focusing on the micro level, which is what I'm going to do, I'm going to cleverly avoid some of the thorny issues that Doug raised. The second point is that it's not that I don't think these are serious questions, I do, but as I'm getting grey I have to think individual action is the key to community action. I'm going to talk about that.

What do I know about community networks and about community meetups? I'm a frequent user of these community meetups when I travel. For example, in Scotland, the public libraries are happy to give you a card on the spot so that you can read your e-mail and do whatever anywhere. In Phoenix, I'm pleased to say where I was just yesterday, in the airport you don't pay \$7.95 to send an e-mail. The network is free. I'm looking forward to free computing in Chicago. I've also been on the fringes of the National Science Foundation Cyberinfrastructure. Here's a group of people who have the best bandwidth you could possibly imagine and they just can't figure out how to get a community going. They are trying to figure out how to collaborate and do interesting kinds of things.

It turns out that working in bandwidth to be a community is hard work. Here are a few rules: technology is cool but she can distract you from the fundamental issues that you need to be addressing. She's an obstacle. It's true. No matter what it is if it's your Microsoft Windows XP server or your new Macintosh, there's always this battle that is going on. Unfortunately, she's an enabler. I mean that in the best and worse sense of that word. Those of us who know about technology can use the technology like a drug. We can use it to lure you into thinking it can do all kinds of things. We can use it to make you think that somehow I'm smarter than you are. I'm cooler than you are. In the end, technology is just a tool. We have to keep reminding ourselves of that. How does this underscore some things that Doug said? It's about the people. It's about the communication. It's about information and access. Just keep saying that it's about the people, the communication, and the information and access and not about the technology. The technology is secondary to the issues.

I also think it's about the vision. I have this sense that in order for us to understand what we're thinking about in terms of community networks, we need an eye chart. We need something that tells us something that tells us the vision is 20/20. One of the great things I liked about one of the papers I read on the blog was that eChicago is beginning to develop a statement that could be an eye chart. Not to sound like a

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cheerleader, but this seems like it could actually measure whether what you were doing was helping to inform that particular vision.

One thing I thought I would do very quickly is to respond to some of the challenges that Doug threw out from my own experiences. Just as Donna Carroll was talking about Dominican being an engaged university, the University of Illinois at Chicago has had a great city's commitment from the early 90s that says great cities have great public universities that work together to solve problems. This is the current statement of the incarnation of the great city's experience. I looked at some things that we've done at the University of Illinois at Chicago Library. In the beginning we started by sharing the wealth. That is we had the Internet and other people didn't. We helped the Chicago Public Library build its first Web site. We installed the first network's access in the mayor's office. The library hosted the U.S. Department of State's Web site and Madeline Albright's e-mail when they were the only agency of the U.S. government that didn't have a presence on the Web. Those were cool things, sharing the wealth and technology.

Now, we've moved into sharing the knowledge. I guess that's the heightening of sensitivity you were talking about, Doug. One example of sharing the knowledge involves what we have done with the Chicago History Museum, which has a wonderful collection that relates to the history of Chicago and the world's fair. We've collaborated with them, not only to put up their collection but our materials as well to make an even more important and interesting collection. Our Caribbean Outreach project is very fascinating. We started with a collection of Caribbean materials but it turns out that Chicago has a burgeoning Caribbean community. We just finished a series of community events that are around that. We've also gotten libraries throughout the Caribbean to contribute to that collection. Out of that came a little digitization project of the sort that helps answer the question about what action you can take to make something more of a community. Our Don't Throw It Away workshop is not technical at all; we simply go into the community and ask people if they have any things in the attic. This is how you figure out what might be good for you to keep. Our most favorite one is the History Makers. In that project people are trying to document the history of African Americans in the U.S. one voice at a time by doing a video recording— we're helping them to catalog, digitize, and make those recordings available.

I want to conclude with some points that mirror the more global issues that Doug was raising. Each one of us needs to take an oath to walk the talk, to share our knowledge and our experience, to make the effort everyday. Frank Laubach talked about 'each one teach one' in the literacy movement and now in the community network, it's 'each one reach one.' Finally, I believe as a technologist that if they build it, they will come—if I remember to leave the door open.

## ***Indiana's Community Networking Movement and Implications for Community Informatics—Kathryn Clodfelter\****

This draws from my own research as a Ph.D. student in information science and also it helps explain some issues I encountered while I was a civilian, if you will, working in community networks starting in 1995. What we tried to do initially to get a handle on what was going on in Indiana by looking at the community networks that were spawned by the Access Indiana initiative back in 1995. It was a government-funded initiative. It was part of the whole information infrastructure federal initiative under the Clinton administration. Howard Rosenbaum, a professor at Indiana University, did a study in 1997 of Indiana's community networks. We did a graphical representation of what these networks consisted of and how many networks there were in Indiana. In 1997 that there were thirty original community networks.

Wayne Buente, another Ph.D. student, and I worked with Howard in 2005 to find out where are they now and what has happened to all these community networks that were started. What we found is that out of the 30, 14 are still alive and 12 of them have gone under, that is they no longer have Web sites. Three more have Web sites but have not updated them for a long time. And the last one of the 30 has been taken over—I know that does not sound very good—but it's actually somewhat positive in the sense that the local library actually took over this community network's Web site. I think that presents a tremendous opportunity for people in libraries to think of the possibility of taking over the function of community networks, which is community information service provision and so forth. That is something we are throwing out there.

The other thing we looked at was changes in content in these Web sites. At just a collective level, we found that the sites that are still around seem to be providing more government information. Their links are all over the place, to elected officials, election information, and government pages. There are more links to economic information than there were back in 1997, in terms of jobs and those kinds of things. What was somewhat surprising to us was that we didn't see any increase in interactivity or in civic participation and discussion.

What we did find was a decrease in community networking services in terms of locations of public access terminals and computer training. Those were things community networks seemed to be providing much more in 1997 than in 2005. And there's been a total loss of group collective identity. In Indiana in 1997 there was a sense that community networks were part of a larger unified movement. By the time 2005 rolled around, that collective identity was gone.

What I'm doing in my own research is mapping out what happened with the community networks in Indiana. What we know is they are embedded in what's called a

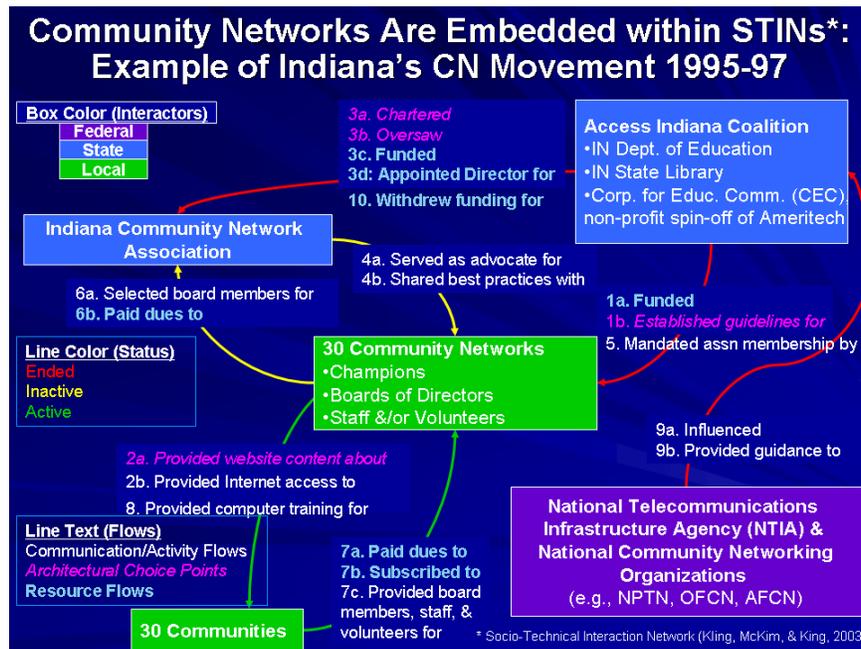
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socio-technical interaction network or STIN. This is a term that Rob Kling was working on. He was a social informatics scholar at Indiana University up until his death in 2003. He originated this idea of the socio-technical interaction network.

The Access Indiana coalition had three funding sources: the Indiana Department of Education, the state library, and a non-profit arm of Ameritech, the major telecom. They funded and established guidelines for these thirty community networks. Those networks were linked with thirty geographic communities, usually counties, in the state of Indiana. Then Access Indiana decided a middleman was needed to pull all of these community networks together, so they created the Indiana Community Network Association (ICNA). I was involved in both the first and second round of funding for two different networks because I moved during this time and was serving on the board of the ICNA. The purpose of the association was to advocate and share best practices for these community networks. Then Access Indiana mandated that all these community networks were required to pay \$500 a year to belong to this association, which gave them the right to select their leadership with the exception of the director, who was appointed by Access Indiana.

In addition to what was created on the state level, there are the federal organizations that acted as umbrellas for the community networks. So what this STIN below represents is the current state of Indiana's community networking and it shows a fairly high level of federal involvement in a state-funded initiative.



Unfortunately, there was a lot of contention between the ICNA and Access Indiana which came to a head in a budget dispute and the end result was that Access Indiana decided to pull the funding for the whole initiative. As a result of the loss of funding the ICNA has been floundering. It has not been able to come up with a good shared sense of purpose among the community networks, and last met in 2003. The

ICNA has \$43,000 in the bank but still has not decided what to do with this money, and are considering disbanding. I'm no longer on that board, by the way.

I live in a very rural community in southern Indiana, and our community network was founded in 1996. As of now it is basically inactive even though we have a board of directors. I think that has been the case with many of these community networks. There was a lot of energy at the beginning, especially while state money was flowing in. Once that flow ceased, the networks have tended to flounder and that's what happened with our community network.

My big question is why was there all this conflict between the community networks? We who were the activists really believed in the technology and believed that this could revolutionize communities. What caused this conflict with the state? I went back to the minutes from the initial meetings concerning the Access Indiana initiative and used critical discourse analysis to look at what was going on. It was quite revealing so I encourage this as a research method. I tore apart the meeting minutes and you could see who was at the table from the very beginning: the big telecoms and the Indiana State Teachers Association, the number one lobbyist group in Indiana. There were a lot of people missing from the table. What this slide [below] synthesizes are the conflicts that arose because the state was looking to govern the initiative from the top down, whereas the community networks were saying, "Wait a minute. We want to do this ourselves. We have the ideas." The community networks envisioned an initiative built and run from the bottom up which would be an advocacy group, not a dominating group. The state made it clear, by the people they had invited to the table, that it was interested in building public-private partnerships. The community networks, however, were stating plainly that they were not interested in big business coming in. They wanted to empower local communities. You can see this really clearly in these meeting minutes. Again, the motivation at the state level was to make these networks economic centers. It was all about money and jobs. In the face of this the little community networks, especially in the rural areas, asked whether poor people would be included. They wanted to make sure these folks have a voice. The state was treating information as a commodity whereas at the community networking level, the goal was the sharing of information, not the selling of it. The state was very much about commodifying information and making a profit.

## Preliminary Discourse Analysis Reveals Competing Visions between State and CNs

Contrasting 1995 State meeting minutes with Community Network Association discussion of 1998 budget shows there were radically different visions between the State & local Community Networks, which likely impacted Indiana's CN movement trajectory...

Topic	Vision	
	State	CNs
Governance	Top-down	Bottom-up
Resources	Centrally located, "best-of-breed"	Locally-obtained, low-cost
Purpose	Attract Public-Private Partnerships & Large-Scale Investment	Empower & Promote Local Communities
Motivation	Profit/Economic/Controlled	Non-Profit/Social/Creative
Information	As Commodity	As Commons

Based on this experience, I think in any kind of community informatics initiative we need to know who all the relevant actors are and what is the socio-technical interaction network in which you're working. Rob Kling does lay out eight steps for doing that model like I just showed you. Here are some of the specific questions to ask: Who's at the table when these kinds of initiatives are being planned? Who is missing? How can you include them? Who's really being served out of all this? Specifically, what role do academics, librarians, community champions (those with all the energy), and local elected officials play? The goal is to create win-win situations. It can't be one sided—we can't simply focus on the communities. We should be considering where these other actors are coming from and what is motivating them from the social, political, and economic perspective. There are theories that could help with this.

## What Are the Relevant Socio-Technical Interaction Networks (STINs)?

A Socio-Technical Interaction Network (STIN) is a “network that includes people (including organizations), equipment, data, diverse resources (money, skill, status), documents and messages, legal arrangements and enforcement mechanisms, and resource flows” ... “Network relationships between these elements include; social, economic, and political interactions.” (Kling, McKim, & King, 2003, p.48)

The 8 steps for modeling a STIN are to identify:

- Relevant population of system interactors, including funders & resource managers (Stakeholder Analysis)
- Core interactor groups
- Incentives (Business Model)
- Excluded actors and undesired interactions
- Existing communication systems
- Resource flows
- System architectural choice points
- Mapping between architectural choice points and socio-technical characteristics

Something that I've been concerned about is the ideologies of computerization movements, which we have touched upon today. There is a tendency to believe that technology can do it all the way. More technology is always better. No one loses from all this computerization that is going on. We just have to get uncooperative people out of the way. I'm throwing this out as a critique potentially both of community informatics and also of people in government. Both need to be wary of thinking that there are no bad sides to technology. People have these blinders on about technology: it is going to take care of all the social problems and then we won't have to worry about it in other ways. I think some of the questions we need to ask are do communities really want technology and, if so, what do they want it for? And, who says that they want it? We need to consider the possible unintended consequences for communities when you bring in technology. You really have to look at that. I know we all love technology but the fact is that our resources are limited and technology initiatives take a lot of money. What can happen is that resources can be drained away from other good initiatives. Also, technology can change neighborhoods and affect interpersonal communications.

Unintentional consequences are something I have encountered and I feel we in social informatics need to be more aware of them. When everything is put online, it allows the government to say that since everything is online there is no need for local service providers. That really impacts rural areas like mine. The government has closed down offices. We have to drive an hour just to file for unemployment. If you don't have a computer you are out of luck. That possibility must be factored in when championing community technology.

I'm not going to go into critical discourse analysis too deeply but I did find it a useful method for looking at the meeting minutes from the early days of the Access Indiana initiative. Critical discourse analysis is a five-stage process. It's a really useful way of tearing apart discourse having to do with foundational documents.

Other key questions we need to ask concern the motivations and issues behind community informatics. Is it possible that “bridging the digital divide” rhetoric is simply a way to get public support for these big-dollar technology investments? Who’s really intended to benefit? What assurances are built in when these technology initiatives start up so that the actual target beneficiaries are going to be serviced?

It is crucial that we determine what the prevailing paradigm is. It was clear to me from the Access Indiana minutes that the prevailing doctrine is that private-public partnership is good. When you dig in and look, however, is it really about people or is it about big business? We must look at the different philosophies that are being expressed and at the same time remain open minded. I think it’s important for community informatics to bring to the table some people you might not have thought of. It’s real easy to get people of like minds together. What’s not so easy is to bring in the enemy, the powerful elite, big business. What is it that’s motivating them? I happen to be married to a guy that hates technology and who really believes the Internet is the ruination of society. We have very interesting conversations. I thought he was crazy at first, but 10 or 12 years into this I can see he has made some very good points. It’s not all good. We’re starting to see some of the bad effects of this ramping-up of technology. So bringing in people who are not necessarily pro-technology, like my husband, is a good thing to do. They’re going to see the errors and why you’re not going to get everyone on board.

It is also crucial that you bring in the real intended beneficiaries. I was struck when I started my Ph.D. program and my professor said, “I have a lot of colleagues who studied the poor and they have never ever met anyone who is poor.” That just floored me. Again, I live in a rural and impoverished community—that’s where my passion comes from and I’m sure for many of you it’s the same deal. There is a lot of academic work that’s being done where people have never met the subjects and then there are meetings where the people that you are intending to help aren’t even at the table. That’s crazy.

Again, I urge you to dig into the documentation. It is so much fun. I didn’t think much of the critical discourse analysis method until I picked up one set of meeting minutes, two pages long, and began tearing it apart. Besides being enjoyable, the process enabled me to see why things didn’t work the way that I, a community informatics activist, thought they should. It’s very revealing when you can do this, since one thing we don’t do well in community informatics is measure our outcomes. I don’t mean doing so in terms of the input, how many training hours and so forth. What policymakers need to see is whether or not a program had a concrete effect on people. Did it make a difference in terms of people getting of welfare and becoming employed, for instance? Find out what the motivations of the policymakers are and be sure that you build those into your own outcome measures for community informatics initiatives. It’s important to understand the ways policymakers think and that’s where you create these win-win situations. I think if we start doing that we might actually break this cycle of huge waves of funding for programs only to have those programs fail or be less than fully successful.

## ***Digital Citizenship and Communities: What We Know, What We Need to Know—Karen Mossberger\****

In talking about digital citizenship in communities today, I'm going to present some research that shows technology use at the individual level but also how that use is affected by community characteristics. The first question is what is digital citizenship? What is it that I'm talking about? This is a concept that Caroline Tolbert, Ramona McNeal, and I used in a book that is forthcoming this fall from MIT Press. We talk about digital citizenship as the ability to participate in society online. It's more than simply having access. It's more than simply occasionally using the Internet as the Pew Internet and American Life Project counts in their data. It's useful to know that 70% of people have used the Internet at least occasionally but that doesn't tell us that all of those 70% of Americans are really able to use the technology online to do important things, such as follow politics, be involved in the community, or acquire the job skills to get ahead.

We talk about this as regular and effective use. We measure this in our study as people who are daily users. That's not a perfect measure but we figure that those people who go online every day are people who have probably acquired some standard of skills, who are able to navigate the Web and find information and use it. I just want to mention that one of the issues in skills is that it's not just about technical competence but about what's often called 'information literacy' in library science, which is being able to find the information online, to evaluate it, to use it. That, of course, means that people who use the Internet effectively need educational competencies. This isn't just a technical issue but it's about fundamental educational issues, literacy. That involves questions in society like inequality in education. So, resolving some of these issues is more than getting technology in people's hands but addressing some of these educational inequalities as well.

How we count makes a difference. I mentioned the Pew study before and it is a terrific source of data, but we need to look at some of these statistics that come out, as I said, about people who use the Internet occasionally. If we compare those who ever have

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Other recent research includes studies examining the impact of Internet use at work for less-educated workers, and patterns of information technology use in poor communities. Her coauthored paper on "Race, Place, and Information Technology" (with Caroline Tolbert and Michele Gilbert) won the 2005 Best Paper Award for the Public Policy Section of the American Political Science Association. Using multilevel models, the authors show the impact of living in high-poverty communities, which explains racial disparities in technology use for African-Americans, and restrict opportunities for individuals of all races. Mossberger's collaborative work on information technology has been supported by grants from the Smith Richardson Foundation and the U.S. Department of Housing and Urban Development (among others), and has appeared in *Public Administration Review*, *Social Science Quarterly*, and *Urban Affairs Review*. She serves on the national technology advisory board of the Boys and Girls Clubs of America and the Digital Opportunities Measuring Stick project on technology and youth supported by the Annie E. Casey Foundation. (mossberg@uic.edu)

gone online with those who use the Internet every day, only about 60% of people who say they go online are daily users or what we call digital citizens. There's been growth in both groups over time, but we can see that less than half of Americans are daily Internet users. That usually occurs at home or at work.

To answer the question of who are digital citizens, we used the 2003 current population survey. It's a couple of years old. Unfortunately it's the most recent technology supplement published by the U.S. Census Bureau but there's a real advantage to looking at this because there are over 103,000 respondents. We could break down this huge sample into groups, so that we could look at only African Americans or only Latinos or only people with a high school education or less or only low-income people, older and younger.

Looking at the overall sample, we found in 2003, using regression analysis, that income, education, race, ethnicity, and age all matter for either home Internet access or for frequency of use. Furthermore, when we look at the low-income or less-educated sample, race and ethnicity still matter. Poor African Americans and Latinos are still more disadvantaged in terms of access and frequency of use, which I have noted are crucial components of digital citizenship. We found that for African Americans, use outside the home is more important.

Occupation contributed less to increased access for African-Americans than for whites. And we found that women were ahead in some disadvantaged groups. African American, low-income, older women are more likely to go online frequently or to be daily users than their male peers.

Another really striking thing was that when we divided up the sample by age, looking at this younger quartile (people 32 years or younger), race, ethnicity, and education still mattered with regard to frequent use, and for access. This suggests that inequality isn't something that is going to fade away in a couple of years. Looking at younger people, there are still divides. There are still gaps. Income didn't seem to matter quite as much in this group. Race, ethnicity, and education did.

Race and ethnicity are factors in contradictory ways, however. We know from previous studies that I worked on that African Americans and some extent Latinos have even more positive attitudes toward technology than whites at similar income and education levels. They say they are more willing to use public access. Whenever you raise the issue of economic opportunity and technology, attitudes are more positive. So, the question is why do these more positive attitudes not always translate into action?

As noted above, race and ethnicity can be linked to less frequent use and less likelihood of home access. One way we might explain this is by looking at the places people live, the community level factors. There is a large literature on segregation and concentrated poverty in urban areas that says people there are doubly disadvantaged. It's not just a matter of being poor or having less education but also of living in a community where there are fewer resources. We asked whether the information age has transformed these existing disparities in very poor communities into new barriers to technology access and skill.

As I said, some of the reasons you might expect this, drawing on urban research across many disciplines, is perhaps that public and nonprofit institutions there have fewer resources with which to provide technology access. Perhaps it's because if you live in a community where people have not gone online or know about the technology, and your

social networks are confined to that community, then you too have a lack of information. It might be a case of lacking weak ties outside your neighborhood. We found that about a quarter of our respondents overall said they use computers and the Internet at other people's houses. Opportunities to go online via employment are scarcer: if the job you have or are seeking doesn't involve Internet use then you don't have these informal opportunities to learn about technology. There are some theories of spatial mismatch, how poor communities are isolated from better jobs, more knowledge-intensive jobs.

We did a national study. We had a national random sample and we merged this with census data and we did something called hierarchical linear modeling. In other words, we looked at individual-level and community-level factors and compared them. What we found that is with people of all backgrounds, poverty of place matters. We found that anyone who lives in a poor community has significantly less chance of being a frequent Internet user or having home access to the Internet.

The really interesting thing is we found that when we introduced these community-level factors, individual differences between African Americans and whites weren't significant anymore. What is significant are the communities people live in. The segregation, the concentrated poverty really accounts for what we see, for the most part, when we are looking at differences based on race.

Once we control for education and income, why is it that race still matters? It can be explained by where people live. That's true for African Americans. For Latinos, those place effects—median income and educational attainment didn't entirely explain differences between Latinos and non-Hispanic whites. We think there are other things involved. Sal will talk about that, language and other issues. That is a striking finding. It's saying it's not really people's attitudes or apathy or that they don't understand the technology but it's the structural opportunities in their community. It seems to be a combination of living in a poor community, some of the limitations that people confront in education, and the jobs that they can get, but we're not quite sure. We need to know more about these factors.

After this national study, I worked with some colleagues on a study of northeast Ohio communities, including East Cleveland (which borders Cleveland), Youngstown, and then for comparison Shaker Heights, which is racially diverse but affluent. I want to draw your attention to East Cleveland and Youngstown with regard to Internet use and home access. These are just the simple percentages.

### **Effort and Motivation in Poor Communities: NE Ohio Study**

	<b>East Cleveland</b>	<b>Youngstown</b>	<b>Shaker Heights</b>
<b>% Black</b>	94%	44%	35%
<b>% Poor</b>	32%	25%	7%
<b>Internet Use</b>	52%	51%	79%
<b>Home Access</b>	39%	46%	76%

- East Cleveland residents use public access, homes of friends and relatives, but much less frequent use
  - Similar patterns in highest-poverty neighborhoods in Youngstown
  - Multivariate analysis – those without access at home or work more likely to use the Internet as % African-Americans and education rise within .5 mile radius
- 2005 Survey, Mossberger, Kaplan and Gilbert 2006*

We were really struck by the fact that there are similar rates of Internet use in East Cleveland and Youngstown and yet there's quite a difference in home access, with people in East Cleveland having less home access and yet they are using the Internet at just about the same rate as in Youngstown. In East Cleveland, people not only use public access sites but even more frequently they are using technology at the homes of friends and relatives.

Now, this shows an incredible level of motivation and effort, to try to go online wherever you can even though you don't have easy access. In fact, these people didn't have access at work either. We looked at a group that had no home access or work access, and where they went online most frequently was at the homes of friends and relatives and after that at the public library. They're making these efforts and that shows how important public access is. That we have 99% Internet coverage in public libraries is a tremendous achievement.

This study also shows the limitations, because these people who rely on friends or public access only go online a couple of times a month. They are online very infrequently. We can't assume they have the skills of digital citizenship. We can't assume that they really know how to use the technology or that they can do things such as follow politics and community events online. We can't assume people are using the Internet as a means toward civic engagement.

We found that this wasn't only in East Cleveland. As we broke it down, we found the neighborhoods with the highest poverty levels in Youngstown also looked like this. They happen to be mostly African American neighborhoods also. When we did the analysis to find an explanation for this, it wasn't distance to libraries. It was people's education levels individually, for example, but also it was living in a neighborhood that was majority African American. As the percentage of African Americans went up in a neighborhood, it was more likely that people who had no home or work access made these efforts to go online. Education in the community also increased this kind of pattern, too. As you can imagine, it's a matter of the climate in the neighborhood—people thinking it's important—but the other thing we thought was that this, especially the use of technology at the homes of friends and relatives, has been documented before. There's a literature about resource sharing and kinship networks and social networks in poor communities and obviously this was an example where people were sharing technology with each other and teaching each other informally. Now, that's not enough because of the infrequent use, but that's really a development showing not only motivation but some strengths in poor communities.

Why do we care about whether people go online or not? We put forth some evidence in our recent book showing that it's important for communities as well as for individuals. Internet use at work, when we control for other things like occupations and

so forth, on average means that individuals make \$118 more a week than they would otherwise. Even for people who have a high-school education or less, of whom a somewhat smaller percentage use the Internet at work, it matters almost as much in terms of dollars and cents, \$111 a week. It can mean a big boost in wages. It matters more for African Americans and Latinos because they're paid less and this is an almost across-the-board increase. Technology at work matters more for minorities. Concerning political participation, we know that the use of online news sources is associated with greater civic engagement, knowledge, and interest and that's true not only about elections but about politics and community affairs in general. That is especially true for the young.

The Internet can be a great tool for improving communities in many ways. Municipal broadband represents an incredible opportunity. What we need to know is how that can be connected with resources for people in the community, in terms of skills and hardware, and how that can be used to promote digital citizenship. I think we have some opportunities for natural experiments for great research on this as this is evolving.

We need to know more about skills development and basic literacy, and how education figures into this. There is some good research and more people who are focusing on this, but we need to know more about what people really need for what Charles Benton called 'digital excellence' or what we call digital citizenship. We need to know more about skills and also how people can acquire those. We need to know more about how the Internet matters for equality and participation. I showed how it matters for wages and for economic opportunities but we still don't know exactly how, especially for low-income people and low-income communities. We don't know what we really need to do to translate that into policies and programs. It's not enough to know that people with computer skills do tend to make more money. How do we help people get that wage bonus? We know civic engagement is influenced by income and education so that means low-income communities have some disadvantages in terms of participation and civic engagement, but not always because motivation counts and having issues that people care about counts. How can the Internet help people to become more involved in their communities? Network capacity and information resources can perhaps help to overcome barriers to participation, but we need to make sure people have the capacity to be digital citizens.

## ***Digital inequality among U.S. Latinos: What do we know? What do we want to know?—Salvador Rivas\****

Today I'll be speaking about Latinos and in particular about what we know about Latinos in relation to technology, namely computer ownership and Internet access. Most of you have probably seen a graph like this in which we see the diffusion of selected household technologies from 1920 to 2003. We see the telephone, the blue line, going from 1920 all the way to near saturation — quickly rising in the 1970s. It was much the same with radio; although, radio had a much steeper line towards reaching saturation. Television took about 5 to 10 years to reach saturation. Then we look at the VCR. The time frame for saturation was very similar to television and we know why - men and their unsavory needs apparently had something to do with that. As for the computer, we see that it is growing and we talk about them as basically having reached saturation if not now, in the next few years. Our basic notion is that every household has or should have a computer at home. We feel the same way about the Internet. We would expect it to have reached saturation by now, but in fact there's some evidence — people have been talking about this for a few years now — that it seems to be stalling out or at least not reaching saturation as one might think. The question is why? I don't have an answer for that, but it's something we need to think about.

Given that I asked to speak about Latinos in particular, I want to give you more background about this group relative to other minorities in the U.S. As of 2005, the nation's minority population totaled about 98 million people. That's about 33% of the entire population as of 2005. Hispanics continue to be the largest minority group and also the fastest growing – that is to say, between 2004 and 2005 as group they had the largest gain in population size. The second largest minority group is Black followed by Asian, Alaskan native, and Pacific Islander. Whites Americans are, of course, the largest group but they are not growing as fast as the other groups. The White Americans make up slightly less than 67% of the population. The other important point to consider is that whites as a group are fairly old, meaning that the median age for the white population is about 40 years whereas the median for the entire population is only 36 years of age. Hispanics, on the other hand, are younger and account for about half of the minority population. A lot of its population growth in the U.S. is due to immigration and I'll get to why that's important later on.

Also as background, here is a quote I like and have been using for some time now; it comes from the National Telecommunication and Information Administration and dates to 2002. The quote is, “With more than half of all Americans using computers and the Internet, we are truly a nation online. At work, schools, and libraries, as well as at home, the Internet is being used by a greater number of Americans.” It is true that in

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absolute numbers and in relative terms, more Americans are using the Internet, we can't argue with that. But, are we truly a *nation* online when, in fact, as another speaker mentioned and I showed in the previous graph, not everybody has a computer at home? For the sake of argument, let's agree all people have it at work; but, is everyone employed?

### Work Experience in 2003

Percent Work-experience Unemployed by race and Hispanic origin for Men and Women			
	Men	Women	Total
White	10.8	9.1	10.1
Black	16.3	13.3	14.7
Hispanic	13.1	12.5	12.9
Asian	10.8	9.7	10.2

The "work-experience unemployment rate" is defined as the number unemployed at some time during the year as a proportion of the number who worked or looked for work during the year. (BLS 2004)

8

We must realize and acknowledge that not everyone is employed, right? Moreover, when we start thinking about unemployment by race we come to the fact that Blacks and Hispanics are less likely to be employed; therefore, they are not as likely to have computers at work because market factors make it less certain. Similarly, in terms of people who use the Internet while at work, let's look at how this is distributed in terms of race/ethnicity.

### Internet Use at Work in 2003

Percent Internet Use at Work by race and Hispanic origin for Men and Women			
	Men	Women	Total
White	78.57	74.12	76.30
Black	68.86	66.74	67.55
Hispanic	69.82	65.86	67.78
Asian	83.49	78.76	81.30

Again, Blacks and Hispanics tend to be in occupations that are not as likely to be using the Internet as part of work. So, thus far I've shown you that about 60 percent of households have computers, but if they don't we may think that it doesn't matter because people have access to computers and the Internet at work. As I've shown you, however, evidence suggests that kind of thinking might be naïve because not everyone is employed equally or employed in occupations that make these technologies available. Theoretically everybody has access to libraries and computers and the Internet are now available at nearly all, if not all, of our public libraries. Thus by extension everyone has access to these technologies because if they don't have them at home, at work, or at school, they have access to them at the library. But as the previous speaker, Karen Mossberger suggested, we must do better than that. Public libraries are not open at all times and computer usage is often rationed to 30 minutes at a time making it difficult to accomplish much, especially for users who may not be as proficient as daily home users.

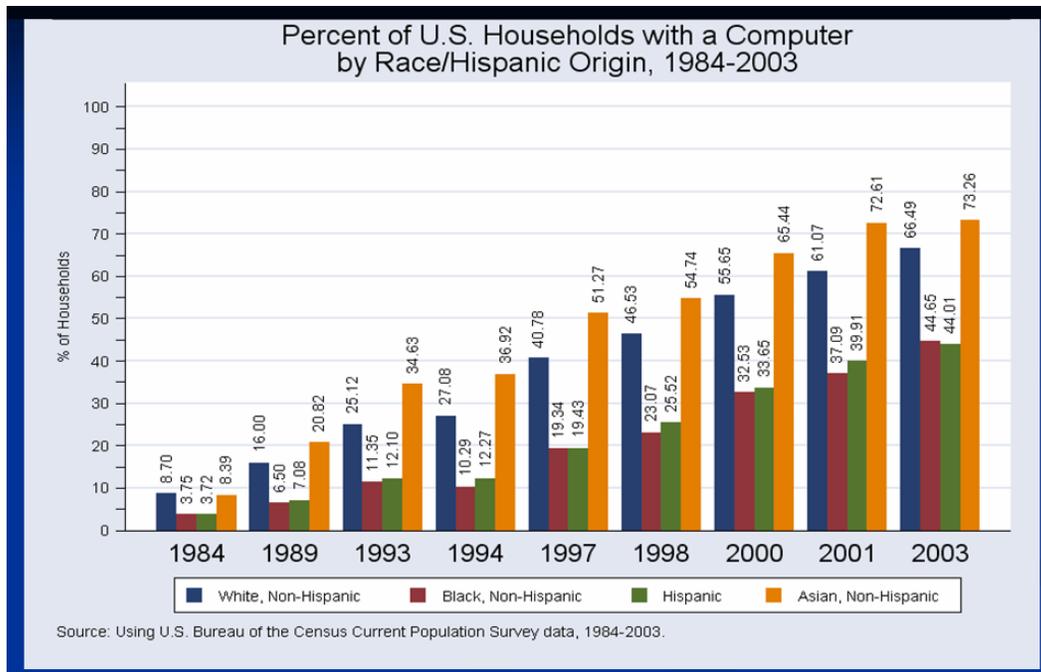
So, what are the rates of computer ownership among Latinos at the household level? In the Current Population Survey (CPS) that question is asked at the household level. Technically it is possible to tabulate computer ownership at the individual level, but in actuality the CPS asked whether there was a computer in the household and not whether any particular individual owned a computer or subscribes to Internet service. Anyhow, of the households identified as Mexican-American in 2000, only about 35 percent had a computer. However, in that same year Cubans and Central and South American households, report slightly higher rates. I'll remind you, however, those groups are smaller than Mexican or Puerto Rican groups in both absolute and relative terms. In other words, it is a very select group of Latinos that actually have a computer at home. It is true that the numbers have improved over the years. In 2001, we see Mexican-Americans going from 37% to 41%; it is important to know that there's been relative improvement. In 2003, CPS collapsed some categories in the ethnicity variable, once we average that out it's only 41% only a 3% to 4% — not huge. Puerto Ricans are faring slightly better, Cubans a little bit worse, and Central Americans and other Spanish speakers are doing a little better. So what's going on? The category Hispanic is composed of many ethnic subgroups, but on average they look very similar to African Americans in terms of computer ownership at home.

## 2000: Computer @ Home Among Latinos

	YES
■ MEXICAN AMERICAN	37.12
■ CHICANO	36.36
■ MEXICAN (MEXICANO)	23.73
■ PUERTO RICAN	36.74
■ CUBAN	38.39
■ CENTRAL/SOUTH AMERICA	43.55
■ OTHER SPANISH	44.48
<b>Total</b>	<b>34.20</b>

In 1984 we see computer ownership rates for Hispanic and Black households (the red and green bars) are significantly different from those of White and Asian households. As we see, that trend — that difference — continues from 1984 to 2003, which is simply amazing. What's going on? Here's another slide; the same basic information, but slightly different to help us see the differences better. The green and red lines, African American and Hispanic households, respectively, show the gap from 1984 to 2003. Any ideas as to what's going on?

I have spent a bit of my time trying to understand this apparent gap, but until now I have not found a definitive answer — just some ideas. Overall, we know that there's a gap in educational attainment for African Americans and Latinos relative to white Americans. Moreover, we know that education is highly associated with whether or not people have a computer at home — that has been documented and established. We also know that income is highly correlated to computer ownership and that African Americans and Latinos, relative to whites and Asians, earn less. Therefore, in any study that attempts to compare differences between these four groups, it is important control for these differences, especially when the outcome variable is likely to be correlated with education and income. We also want to adjust for household characteristics; more specifically, whether or not kids are in the home, because we know that parents often cite their kids as the main reason for buying a computer. To get to the point, I've adjusted for these differences and a few other important factors that are known to be associated with computer ownership and/or differently distributed among the groups being compared. The key here is that even after I do — the difference seen in Slides 10 and 11 remains. This brings us to the quote I started with earlier - the idea that the nation as a whole is online is misleading because clearly that is not the case. For the most part we think about telephones and telephone penetration similarly — we'll often hear that 95% of all American homes have a phone at home. But if you look at it by race, there's a big difference by race/ethnicity. Blacks and Latinos are less likely than whites and Asians to have a telephone line at home. This is important because if people are going to be online, it is most likely that they will need to do so via dial-up. Of course, the trend is towards cable and other forms of Internet connectivity, but it is not clear how these new forms of Internet access will translate in terms of the gap I've been discussing.



This slide lists the core factors that have been established in the past, including a few that I thought were important to control for not in the literature. In general, I've adjusted for age differences, region, urbanicity, household structure, presence of children, the size of the home, education, income, and the probability of exposure to computer use at work. The last variable is calculated by taking the percent of people who report using the Internet at work by occupation. Then, out of all the occupations reported within each household, each household is represented by its occupation with the highest estimated percent of Internet use. In other words, no matter if it's the father, the mother, or one of the kids that has the occupation with the highest estimated chance of using the Internet, then that occupation is used for the household as whole. It is important to adjust for this because it's possible that whether or not a household has a computer has to do with whether or not someone in the household uses the Internet at work. For Latino and Asian households, I also control for the presence of immigrants in the household, which is particularly relevant for these two groups given their recent immigrant history.

These variables are tested in a total of eight nested logit statistical models. Model 1 controls for race alone to get an estimate of computer ownership by race relative to whites. The important point from model 1 is that the results corroborates the two-by-two cross-tabulations of race by computer-ownership - Black and Hispanic households are significantly less likely than white households to report having a computer at home. And Asian households are about 50% more likely to have a computer at home. By the time we get to model 8, where I adjust for everything I discussed previously, the gap by race remains! That is to say, even after I control for the relevant associated factors, we still see a large significant gap between African American and Latino households relative to white households. I can explain the advantage that appears at the baseline for Asians relative to whites, which has to do mainly with their age structure and their geographic

concentration. For Hispanic and Black households, however, it's a whole different story – a story that is yet to be completely told.

As I mentioned before, many have expected a standard diffusion pattern for computer and Internet adoption. Some economists in 2001, based on what they saw as a trend, predicted that 90% of households would be connected by 2005. We're now in 2007 and we are still not there. You have to love the title of their article, "Clear Thinking About the Digital Divides."

In summary, what do we know? We know that Black and Latino households are about 1/3 as likely to have a computer at home relative to white households. My results demonstrate using Current Population Survey (CPS) data the persisting gap in computer ownership levels between Black and Latino versus white households does not have much to do with the factors that I mentioned earlier — factors that should be related. To be sure, I can explain the relative advantage that Asian households appear to have at baseline relative to white households, but I cannot say the same for Black or Latino households. Thus, there is still much to be explained here.

Karen mentioned residential segregation and I would add occupational segregation to that as well. I think it is an insight worth considering because it is possibly at play here. For a very long time, we have had a history of residential segregation based on race/ethnicity and at times on religion and other social constructions. Similarly, we have a history of segregation in terms of occupation making likely that if you are/were of a certain race/ethnicity you would be more likely to live in certain areas and work in specific occupations relative to others. More to the point, if you are in a particular occupation, say one that is likely to have you interacting with a computer and online every day, you are probably more likely to feel more comfortable with such technology and possibly find other uses for it that extend beyond work specific tasks. Similarly, residential segregation places additional constraints on the breadth people a person interacts; if the people are very much likely you and also employed in similar occupations and industries as you, it is not hard to imagine how such a situation would place limits on the type of information communicated within local channels. Unfortunately, the CPS data did not allow for much traction in this direction.

Another possibility that could explain why the factors that I controlled for do not appear to explain much has to do with education as measured by years of education versus literacy — quality of education. By controlling for years of education, as I did, says nothing about where people went to school or how well educated in terms of literacy or numeracy. That is to say, by controlling for years of education we ignore whether the person was educated in an inner-city public school that is ill-funded and under-staffed or in very well funded and staffed private school. Therefore, even though I statistically hold education 'constant' between to people or two groups, the quality of education could be completely different. I've been trying to get my hands on the NCES data titled, National Assessment of Adult Literacy (NAAL), which collected information on computer and Internet use among a nationally representative sample of adults in addition to literacy and numeracy assessments. These data should help get at whether or not the quality of education, that is literacy, helps explain this gap.

Kate Williams and I collected some interviews in Toledo, Ohio, and we're in the process of getting them transcribed. I think they will yield interesting things. Issues like those of transportation have been suggested, which are interesting because we know that

the Internet is technically available in local libraries, but if people can't get to them, what then? Moreover, hours of operation are important to think about as well. Some people work double shifts, so when are they going to use a computer at the library? Things are almost always in English, which some recent immigrants may not be completely familiar in. These are some of the issues whose possible outcomes we need to assess and help determine if we can.

To me, a more fundamental question is still unresolved. That is, what is the effect of this technology we are trying to share with everyone? We like to think that technology is a good thing, but technology as anything else has both positive and negative effects. We don't really know to what extent this technology is a 'true' positive versus one that is only marginally so. We know associations, that is, when one feature is there another feature tends to be there. So in other words, if somebody has a high income they are also more likely to have a computer at home, but we don't know if having a computer at home leads to higher income. What we really need is panel, longitudinal, data that follow people over time. That would help get at the question of whether having a computer and Internet access really has a positive or negative effect or none and better yet, on what outcomes and for whom. We can imagine some kid who is bored out of his mind and is just looking to play games. That's not necessarily a good thing, or is it? It could be, but that's the thing, we really don't know. He or she is probably connecting with other people, but what's the value there? We need to assess these things.

Ultimately, why should we care about technology and why should we have it? Information is good, but if people don't know what to do with it then what's the use? But is that a reason to remain lukewarm about making sure that everyone that wants access has it? One thing is certain, a lot of time and resources are being spent on this topic/question, therefore we should make every effort possible to find an answer to these questions – the sooner the better. Otherwise, we should focus our money and energies on something else like improving the quality of education for everyone. Thank you for your time.

## ***Evaluating two Chicago projects: Wireless Community Networks and the Illinois Community Technology Fund—Amy Kerr\****

I am going to talk about our two most recent research projects at CURL, the Center for Urban Research and Learning at Loyola University. Let me give you some background information on CURL and what we've done with our technology projects as well as our strengths in community engagement. Then we'll talk about the themes that have come up in our research mostly around programming, recognizing diverse content where technology takes place, resources for technology, our further needs, and then some models CURL believes would be helpful.

So here we have our mission statement:

The Center for Urban Research and Learning (CURL) of Loyola University Chicago seeks to promote equality and to improve people's lives in communities throughout the Chicago metropolitan region. CURL pursues this goal by building and supporting collaborative research and education efforts. These partnerships connect Loyola faculty and students with community and nonprofit organizations, civic groups, and government agencies. Such collaborations link the skills and wisdom present within every community with the specialized knowledge and academic discipline of a vital urban university. Working together, community needs are addressed and the academic experience is enriched.

CURL is primarily a nontraditional center in that we take the research outside of academia into the community. We do research with the community, not on the community, so they are a part of all of the steps of our research. Our team-based approach uses not only professors and researchers but also undergraduates and graduate students and we're polling community members and community fellowships. Our projects are primarily based on social justice issues within Chicago, although we have some international presence in England and Australia. We work with what are called science shops throughout the world. We've done projects on issues such as domestic violence, homelessness, and what we're talking about here, technology.

There are two projects that we've worked with as evaluator. The first was with the Chicago Center for Neighborhood Technology's Wireless Community Networks evaluation where they attempted to establish four wireless networks within four communities throughout Illinois. We started with them at the beginning of the project and worked all the way to the end so we had a really well-developed process evaluation.

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\* **Amy Kerr** received her Masters at Loyola University Chicago and is a community research coordinator at the Center for Urban Research and Learning (CURL) at Loyola University Chicago. At CURL, she works with multiple, varied community partners throughout the Chicago area to develop, coordinate and carry out research projects including the evaluation of the Illinois Community Technology Fund. She collaborates with partners to disseminate research and evaluation findings in both applied and academic settings. Her role also encompasses undergraduate and graduate fellow supervision. Amy is currently pursuing her doctorate in applied social psychology at Loyola University Chicago. (akerr3@luc.edu)

The second evaluation was of the Illinois Community Technology Fund. We came at the end and gathered information. We have the whole spectrum of perspectives of these community members since we talked with them at the beginning and at the end.

Now I'm going to highlight some of the key themes we found throughout our research. Most of this was done qualitatively, with some quantitatively, but these themes primarily rose from the qualitative differences. Our basic premise is that community members better understand their needs than anyone who comes in and observes. They are experts. We are experts in other things—within academia—but the communities are experts in what they are.

First, engaging the community within your project not only increases their involvement and their ownership of the findings, but it also sustains the project because it is then the community's project and they want to see it continue. A consequence of not including these individuals is that there is less interest in sustainability, so you see lower success rates and your knowledge resources are untapped and not used to the full potential. What we need is to have active solicitation at all points of the community members and participation at all level: this participation is crucial during the initial and evaluation phases.

Furthermore, the community must be asked how they think this information is best gathered, since they know how to talk to people and what really brings their community members out. And you need an establishment of a critical mass. When you're soliciting these community members, you need to have enough. There needs to be a large number throughout the community at all levels in order to sustain the project. Concerning programming, it was mentioned earlier that you can't just give someone a modem and expect great things to happen. This is very key in what we've found. Technology is a means and not an end. People need to develop fluency through their education and training and not be limited to programs providing basic computer skills. A good example is a program in which girls built a Web site advertising nonprofit organizations. In doing so, these girls were not only giving back to the community but they were learning about what they can do to better understand the technology. A consequence of not integrating the technology into the programming is that you lose community support because they aren't as interested or engaged in it. What we need are the resources to support and sustain communication and ownership so that community members can determine the type of programming they need, and the funding to build on these programs and not just purchase hardware.

One of the things we came to realize is that every community needs a different technology resource. Communities are so diverse and we need to recognize these diverse contacts when coming into the community or working with the community to build technology networks. If you look in the pamphlet I gave out, there's a triangle of needs we created along with Michael Maranda, whom some of you may know. This is the idea that the computer labs that are new need a basic level of support—initial staffing, initial computers. Then as they become more developed and sophisticated they begin to collaborate with one another and funds are needed at every level of this.

Once you recognize the level that the center is at, you're better able to utilize the resources that are given. This is critical because although there's an ample supply for hardware and sometimes even additional funds to build that up, there's a limited amount of funding for planning or implementing programs and networking. People like to see

hard outcomes rather than just giving money to allow time for the expansion of programming and networking in the organization. Also, you find this underuse of programming and lower success rates if you don't build the program around the community. What we need are opportunities for agency-appropriate funding and not such rigid, inflexible funding agendas. There needs to be a broad needs assessment across communities to see what the actual needs are in terms of all types of resources, human, financial, and physical components. There also needs to be documentation of the processes used by successful programs. It should be clear how people integrated the programs into their communities so others can follow.

In terms of resources for technology, staffing was a big issue in that it could affect the successes and sustainability of the program. You have these very creative and passionate staff members and they are dedicated but there's a high turnover rate because of noncompetitive wages. I'm sure many of the practitioners here understand this: the result is that people are unable to fulfill program needs to the highest level. This affects the programming throughout. You do see this creative use of piecemeal resources by restrictively funded agencies and programs so there are very innovative programs throughout, but the resources aren't there to bring funding to its optimal level.

There needs to be an assessment and mobilization of resources once a program begins, because people sometimes stretch out and don't plan for all the possibilities. That's a key component in ensuring a successful technology program in a community and also the technology needs to be stable. This was one lesson we learned from the Wireless Community Networks program: you must make sure the technology works and you can deliver what you promised to your community members, because you're in a partnership together and you need to be able to bring up your end. The consequence of not fulfilling these promises is that you then are running a precarious program of activities that come and go and end before the needs are met. There is a reduction in the amount and quality of services, so that the program is less successful than it should be. As we talked about before, there are ample supplies of hardware but there is limited funding for programming and networking.

What we need is communication. Adrian Kok here is talking about communicating sustainable program focus funding needs to private and public sectors. We need to let funders know what is actually needed in the funding rather than just taking what they give us, and help them to understand what is needed in communities. And, we need to plan for the realistic use of resources and what can be done in a particular community and not overstretch, but at the same time we should not underestimate what the community is able to do.

On the subject of further needs, there needs to be a model of the process of community engagement and technology. I'll talk about the community fellow model that we used in a moment. There needs to be realistic sense of staffing and funding needs for programming developed through a needs assessment so we all have a basic knowledge of what is needed just to get these community technology programs working. We need models of successful community programs in multiple sectors that utilize technology.

There are so many resources out there that people don't know about. There are already programs translated into many languages. You have people who have been successful working with youth throughout the years, know exactly what you need to do, and have the brochure to show you, but it comes together through all of these service

providers communicating and networking with each other. There needs to be a model for how to get these groups communicating and sharing the resources.

There needs to be more technology advocacy strategies, and in part this has to do with the lack of funding in this area. We have a pamphlet which we give out to government funding sources as well as private funders, to teach them what needs to be done and to advocate on behalf of community technology. As I was saying before, we at CURL believe that a needs assessment model is very important to begin with, in order to see what your community needs and to make sure they are included on all levels. This can happen through focus groups with the community members and focus groups with the people who serve the community members as well as people who are in academia, the “experts.” We used the community fellow model in which we took applications for a member of the community to come and sit on our research team and speak for the community. She had worked with the community for years and since it’s hard to reach a lot of people, you can use that one person to stand and speak for the group. Lastly, it is important to have a dissemination model, especially when you have multiple levels to a report as we did. You have your thick reports that nobody ever reads unless they have to, but then you need to develop something that can be disseminated. This is to let the government, public officials, everybody out there, know what you’ve done and what you’ve found and what needs to be done; multiple presentations at conferences and advocacy centers are another form of this. That’s how CURL works. As I was saying before, we look at the community with the community and help bring their needs to the eyes of this action and policy. Thank you.

## ***Computer Training for Older Adults: What do we know about resources in the community and what do we want to know?— Adrian Kok\****

I'm an assistant professor from the Graduate School of Social Work here at Dominican University and I'd like to tell you more about computer training for older adults. This is based on my interest in older adults who use computers and to engage communities that support this endeavor which could result in a more enthusiastic use of technology to enhance lifelong learning among older adults. My foray into the field of community informatics began during my Ph.D. research at the School of Social Work at the University of Illinois at Champaign-Urbana. I was fortunate to be acquainted with Ann Bishop and Chip Bruce who were professors from the Graduate School of Library and Information Science who led me to the field of community informatics. The research led me to engaging many constituents and communities. I had many interesting experiences and interactions with people who were involved in the community informatics such as Paul Adams from Prairienet and Ann Bishop who are both here today. Today, my discussion will focus on two basic issues.

### **Outline of Presentation**

- Background & research
- Questions
  - What do we know about resources in the community?
  - What do we want to know?
- Reflections of Chicago Digital Alliance manifesto

What do we know about the resources in the community for computer training for older adults? What do we want to know about computer training for older adults in this community? The other part of the talk will discuss my reflections of the manifesto of the Chicago Digital Alliance developed by Charles Benton.

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\* **Adrian Kok**, Ph.D., is an assistant professor at the Graduate School of Social Work, Dominican University. His research interests are in the area of older adults using technology, multidisciplinary collaboration, and technology learning among older adults. He recently published “Multiple perspectives in learning and collaborating: A case study of the HelpSource Collaboration” and “Enhancing information literacy in an interdisciplinary collaboration.” (ajkok@dom.edu)

Community informatics is a field that pays close attention to processes and outcomes of collaboration. It's multifaceted field that incorporates, in my opinion, core values of social work, such as social justice and the importance of human relationships. At the same time it addresses aspects of activism and community organization. Like social work practice, community informatics involves the use of resources at the micro, mezzo and the macro level systems in the community. As my first definition here indicates, communities can typically be conceived in terms of geography and the physical space that people inhabit. However when this concept is applied to computer training or technology learning, we could also consider communities of practice, as in the second definition here.

### definitions of community

- "A community is a relatively self-sufficient population, residing in a limited geographic area, bound together by feelings of unity and interdependency (Munon, 1968)."



- "A community is a group of people lined by a communications structure supporting discussion and collective action (Farrington, 1997)."



Who are these communities of practice in the field of computer training for older adults? We could consider the perspectives, knowledge, experience that computer instructors such as librarians and computer scientists bring into the development of the curriculum and in teaching older adults. We could also consider the skills and knowledge that social workers bring to service delivery and their awareness of resources in the community that older adults could use to sustain their computer skills and learning. We also need to think about the older adults themselves who are the recipients of these services and their perspective of what works in these training sessions, for example, the size of the classroom, the number of people in the class, the mix of novices and experts. My current research examines the multiple perspectives of the computer instructors, older adults, and social workers and their perceptions of what works in computer classes. I'd like to share with you some of the research findings from that study and observations about computer training classes in the Chicago area.

## perspectives



- Computer instructors
- Older adults
- Social workers

## 2 Community Trends



- Movement away from classes tailored for older adults to generic "basic computer skills" classes
- Recognized need and urgency to develop computer skills among older adults

What are some of the trends in this community? The first thing that I observed is the movement away from classes tailored for older adults to much more generic computer skills classes. Libraries, because of economies of scale and because of lack of resources, have been scaling down their basic computer skills classes. There are no more classes tailored specifically towards older adults - what is offered tends to be more generic and a class catered to people who are new to computers. The data which I have collected shows that older adults prefer to be learning computers in the company of their contemporaries and they also want the instructor to be an older adult. I found this preferred practice to differ from prevailing trends.

The second trend that I observed is a recognized need to bring older adults onto the digital bandwagon. As many of you know that digital divide research shows that older adults compared to younger people are less likely to use and have access to computers and the Internet. Some older adults do not have the basic skills to know how to use the mouse, point and click, and to be able to access information readily about the community,

and policies. Clearly there is an urgency to train older adults because of their sheer numbers.

### **Number of Older Adults are increasing**

- 2004 = 12 % - 36.3million
- 2030 = 21% - 70 million
  
- 2004-2050 – Population will increase by 49%
- 147% projected increase for older adults
  
- Old-old (85 yrs and above)
  - 12% of older population (2004)
  - Increase of more than 300% from 1960-2000

» US Census Bureau

Back in the year 2004, only 12% of the US population was 65 years of age or older but in the year 2030, it will go up to 21%. This means that one out of five persons will be an older adult. Between 2004 to 2050, there will be a 49% increase in the general population but the percentage of older adults will increase at a rate of 147%. In terms of the old-old group, i.e., those who are 85 and above, they comprised 12% of the older population in 2004. But this will increase over 300% by 2030.

### **Changing Demographics**

- By 2050, the number of those age 85, may quintuple to more than 19 million
- Centenarians are the fastest growing age group
- Ethnic minorities
  - 16.4% are 65 years or older
  - By 2030 older ethnic minorities will form 33% of the older population



Gero-Ed Center (2005)

By 2050, there will be 19 million of those who are 85 years or older. Older ethnic minorities will consist of one third of the older adult population. All in all, there will be

an increase in the number of older adults. How do these trends impact upon the delivery of computer instructions for older adults?

If you were to look at the changing demographics and how quickly technology is evolving, and how ubiquitous technology is, we may need to consider more than just teaching basic computer skills to older adults in the future. Because information literacy skills are likely to be enhanced with each generation, it may be likely we may be teaching older adults how to integrate their phone systems with their blackberry and ipods in the future. Also in terms of the demographics and how this may impact upon the way instructors deliver computer classes to older adults, computer instructors may consider the use of culturally sensitive approaches in delivering instructions to the Latino groups and the use of community or family oriented, culturally sensitive techniques to sustain technology learning.

### 3<sup>rd</sup> Community Trend



- Independent delivery of training sessions rather than an integrated approach which relies on the expertise of communities of practice

The third trend that I have noticed in the community is there's been a piecemeal approach in the providing computer instructions training to older adults rather than a coordinated effort by communities of practice to deliver instructions in a manner that takes into consideration best practices which promotes and enhances learning. For example, different instructors have developed their curriculum for training within the same library. Many rely on their rather limited experiences and knowledge to develop a computer training curriculum instead of relying on evidence based practice approach in developing an effective training program. Instructors vary in their education background, and are likely to bring with them their biases and perspectives regarding best practices in teaching computer classes. There also does not seem to be an attempt to cross-pollinate knowledge across disciplines and use the strengths of these disciplines in these classes. Organizations are also providing computer instructions to older adults without assessing the impact of these classes.

## Benefits of Computer Use to Older Adults



- Increased social interactions (White et al., 1996)
- Reduced depression (Noer, 1995; McConatha et al., 1995)
- Enhanced perception of social support (Wright, 2000)
- Increased self-confidence, ability to learn and memory retention (Ogozalek, 1991)

Let us now look at the research on information technology and its mental health benefits to older adults. Studies have generally been positive in describing the clinical benefits of computer use, for example, computer usage has increased the number of face to face interactions. Older adults in retirement communities were less likely to feel lonely when they used email and were able to gain access to the Internet. Individuals who used computers increased in their belief that there will always be someone that they can turn to for help. Studies have also shown that after 6 months of online activity, seniors who used the computers had lower depression levels, more activity level and better mental health than a control group. Research also found that learning to use a computer increased older adults self confidence, their ability to learn and memory retention. In general, research has documented short and long term mental health benefits with computer usage in relation to older adults – an enhanced self esteem, increase in self efficacy, reduction of loneliness, and less depressive symptoms.

## What do we want to know about older adults and computer training programs?

- **Do the programs actually work?**
  - Generalization and maintenance of skills & knowledge
  - Enthusiasm to learn & lifelong learning
  - Increase in computer use and community involvement
- **Which specific features of these training programs are effective?**
  - Learning principles
  - Use of culturally sensitive approaches to service delivery
  - Use of classroom space
- **What are the new innovations?**
  - New projects under taken by community technology groups
  - Use of community resources

Lets go back to one of the two questions: What do we know about computer training programs for older adults? Not a whole lot! The first issue is, do we know that these computer training programs actually work? I've surveyed the research in the area and there has been no systematic study conducted to examine how skills transfer from one setting to another and how unique aspects of one's culture supports learning. We are also not aware of studies which focus on both the short term and the long term benefits of using computers for older adults. We need to look at how computer skills learnt in these classes are applied to a different context and learning situations. To what extent do these skills snowball into something that will engage older adults into the life of the community? When we think about computer training in older adults, we need to consider its impact on lifelong learning. Also, we need to consider issues of isolation and how computer skills will mediate and enhance feelings of integration and connections with their family members.

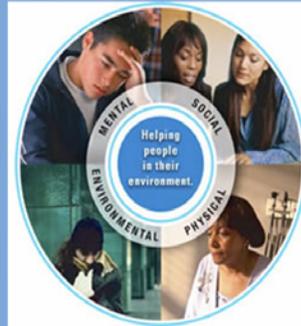
The second question that we need to ask ourselves is which specific aspects of these training programs are effective? For example, what is the best ratio of trainers to older adults in a classroom setting? Does gender mix matter? Does the intergenerational component of computer programs work? Should instructors devote a substantial amount of time teaching specific skills or should instructors use the interests of older adults for classroom assignments? What is the ratio of practice time to teaching time? Do peer approaches assist older adults in acquiring computer skills more than instructor directed approaches? There has yet been a systematic research on all of these features of computer classes.

In my visits to computer training classes, I have observed that people use and construct their spaces differently. There is the traditional approach with the teacher lecturing at the front of the class while in other classes, instructor can be in the center while the learners sit around the instructor in a circle with their respective computers. Sometimes configuring the space differently could lead different learning outcomes for students.

Lastly, what are the new innovations in computer training for older adults? Perhaps we should think out of the box in terms of teaching the learner in a traditional classroom. We would place computer terminals in community settings such as the beauty parlor and community centers. We could use community resources to learn in a more natural environment and embed learning opportunities in their interactions with children and family members. There are many ways we can learn computer skills besides the traditional classroom settings. Lastly I would like to propose a cross disciplinary partnership between current instructors, librarians with social workers.

## A Potentially Useful Community Resource for Digital Inclusion

- SOCIAL WORKERS !
- Community advocates
- Potential partners in projects involving older adults
- “Organizational” & “professional” digital divide
- Do social workers have the technical know to assist with digital inclusion?



There is much common ground between social work and the field of community informatics. Individuals who work in the field of social work and community informatics address issues of inclusion and social justice. We work with marginalized groups to enhance their participation in community life. Both groups of professionals are advocates, teachers, collaborators, and have unique skills that can contribute to the further development of computer training programs. Although social workers may lack the technical know how of librarians, their knowledge of systems and community resources and people oriented skills could assist with the sustainability of the computer training programs for older adults. There's a lot more common between the two professions than one might think.

## What do we want to know at the macro level?

- **Systematic assessment of older adult information needs**
  - What are the service utilization rates of computer training classes for the older adults?
  - What skills and knowledge do older adults want to gain from these classes?
  - Organizations' willingness to meet these needs
  - Eg. Kate Williams study of social network and local technology
- **Impact of an interdisciplinary and innovative approaches to collaboration**
  - Use of other non-traditional approaches in teaching computer skills to older adults eg. Intergenerational programs with the goal of enhancing digital literacy
  - Possibility of having social workers in the library
  - Eg. Jan Rodgers collaboration with libraries in Ecuador

What do we need to know? On a macro level, we need to conduct a systematic assessment of older adult information needs. For example, what do older adults want to learn in these classes? Is there a community infrastructure and community assets that

would meet these information needs on a long term basis I am reminded of Kate Williams's study of social networks and local technology. She went to six communities here in Chicago and she did a biopsy of the strengths of these spaces so it was a quite interesting, in-depth study of local resources. What can they learn in these classes so they can fully exploit the potential of a wireless environment? We need to understand the service utilization rates of computers by older adults. We need to find out why older adults prefer particular programmatic approaches over others. We need to look at what works for older adults. We need to mobilize community partners who are willing to come together to collaborate. Again social workers have a history of being community advocates and change agents and are potential partners with librarians.

We should consider a cross disciplinary approach to deliver computer training programs to older adults. Social workers have seldom considered the librarians as their traditional network of support and the same could be said of the mindset of librarians as well. What are the non traditional ways and innovative ways of collaborating with other professions? One idea is an intergenerational program that includes adolescents and young adults when working with older adults. Although research has shown older adults prefer working with older adults, there is evidence to show that intergenerational programs enhance the learning experience. Jan Rodgers, my colleague at the school of social work, is looking at the possibility of placing social workers in libraries to help victims of human trafficking in Ecuador. In her study she looked at libraries, which are places of high human traffic, and found that many potential and people who have had experiences with human trafficking come through the library and she's been able to collaborate with the library and to work with the people their to address their concerns. It's interesting to know that there are concrete ways to show how this interdisciplinary approach is cross-pollinating the field of community informatics.

Before I conclude my talk, I'd like to draw your attention to a few of Chicago Digital Access Alliance's 10 Principles for Digital Excellence which is related to today's.

**Chicago Digital Access Alliance's  
10 Principles for Digital Excellence**

- Sound planning, evaluation, and policy measures are critical to digital divide evaluation and digital excellence impact



One of the principles focuses on sound planning, evaluation, and policy measures which are critical to digital divide evaluation and digital excellence impact. We should

think about how we could gather data about the community's digital divide to help authorities and local constituents assess the city's efforts in reducing the gap between the haves and the have nots. Perhaps we would need to be more systematic in how we collect data on connectivity rates among older adults who are from lower income groups which could inform how policies could be formulated.

**Chicago Digital Access Alliance's  
10 Principles for Digital Excellence**



- Digital literacy and fluency are forms of human capital and require public investment

Secondly, digital literacy and fluency are forms of human capital and require public investment. We should take a look at the priorities in resource allocation by local and state government to assess whether digital literacy is one of the overarching priorities. Are funds delivered consistently to agencies to make digital inclusion a priority for the community?

**Chicago Digital Access Alliance's  
10 Principles for Digital Excellence**

- Local infrastructure is necessary for community driven content development



And lastly local infrastructure is necessary for community driven content development. What initiatives are supported by the local government and organizations to ensure that there is local content about the community? What content is needed by older adults about their communities? And how could we support local initiatives to develop local content?

This concludes my talk for the session. Thank you for your attention.

## ***Public access computing in 14 Midwestern public libraries— Diane Velasquez\****

This is actually an offshoot of my dissertation topic which is “Technology Impact on Organizational Change in Public Libraries.” I’ve been doing my data collection for the last six to eight weeks. Currently, I’m in the transcription stage and, hopefully, will be done writing it by the end of June.

I’m going to tell you a little bit about my dissertation topic. I visited 14 Midwestern libraries in suburban and rural settings in the Midwest. These libraries serve communities with population of 25,000 to 999,000. Most of the populations were small towns of about 25,000 to 30,000 and the additional community they would serve would be the outlying area of the county, maybe another small community here or there. They would either serve it through bookmobile programs or through outreach of some sort. Four communities were suburbs of a metropolitan area. They were distinctly different from the other 10 libraries.

The research methodology was one-on-one interviews with the directors and other staff. I collected documents that allowed me analyze board of director minutes, financial statements, technology reports, and other pertinent information. Other pertinent information included organizational charts, job descriptions, anything you can think of that they had. Some libraries had a lot of information; other libraries did not.

According to research done by Chuck McClure and John Bertot of Florida State University, public libraries have an average of 10 public access computers. Public access computers that the public have access to are connected to the Internet. They’ll have OPACs which is to the library catalog and then some will be just to their databases. And others will hit all three things. Many times it depends on how the library is set up. In some libraries they had 6 and in some they had 35 public access computers. It just depended on how affluent and how well supported their library was by their funding agency.

Based on my research, what the libraries have found is that once the public access computers are brought in, they attract a clientele different than the one libraries have traditionally served. The people who use the computers are not those who traditionally have checked out books, videos, or books on CDs, looked at periodicals, or come in to read the newspapers everyday. They are totally different people. At one library I was visiting, the Internet was down. It was after the President’s Day weekend. Signs were going up outside the library “Internet down” before the library opened. You could just see the looks on some of the faces. They were not happy campers.

In rural communities that I visited, the public library is the only place for computer access. That’s it. There aren’t any Internet cafés. There is typically not another library in town. There may be a community college close by. This was true in Nebraska

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\* **Diane Velasquez** joined the faculty of the Dominican University Graduate School of Library and Information Science shortly after the eChicago symposium. She completed a dissertation at the University of Missouri-Columbia in the School of Information Science and Learning Technologies entitled “Technology and its Impact upon Organizational Change in Public Libraries: A Qualitative Study.” Diane has a M.L.S from the University of Arizona, an M.B.A. in Management from Golden Gate University, and a B.A. in Political Science from San Jose State University. She spent 20-plus years in various roles in corporate America before returning to pursue her doctorate degree. (dvelasquez@dom.edu)

particularly, where there were some colleges; the University of Nebraska campus was close by but for the most part there were not other places people could go for access to computers. That was it.

This slide represents the data from 1994 to 2004, public access computers and public libraries on a nationwide basis. The data is from Chuck McClure, John Bertot and other researchers of the Information Institute at Florida State University who have worked on this over the last 10 to 14 years. You'll notice that in 1994 12.7% of the libraries had public access computers, which may or may not have been connected to the Internet, and the percentage had increased to 98.4% by 2004. So approximately 100% of the libraries today are connected. There is a 70% jump in 8 years from 1996 to 2004. I should mention in that these numbers from 1994 and 1996 on public library use of the Internet, there is no differentiation between staff and public Internet use in the surveys. I couldn't tell you who was using what computer. I know that at one library I visited, in 1994 they had one Internet computer in a locked room, upstairs, for public use. They had to get staff permission to use it. It was there but very difficult and the public had to know about it. At that point the Internet wasn't as developed as it is today. You see from this picture almost 100% of the libraries in 2004 have Internet computers.

So what do we know about community use of technology? Public libraries have become the technology center in their community. Many of the libraries I went to had moved beyond the early forms of technology. All the libraries I went into have wireless technology. Most of them have had it for over a couple of years because they realized it was a very easy way to get additional users into the library. They could bring their own computers.

Again, one of the things they ran into was their facilities. A lot of them were in old buildings. By old, I mean built in the 60s or 70s. The power capability just isn't in the building. The libraries are finding that many people who come in with their laptops want to plug them in and they didn't plan for this. In order to facilitate to use the computers in their libraries, the personnel I talked to want to build new buildings. They want to increase buildings and a lot of the communities can't afford that.

The residents just don't see it at all. The libraries are seeing many patrons at a low socioeconomic level coming in to use the computers because they need to use the Internet and that's the only place they can get it. To fill out a job application nowadays, you need a computer. To fill out a tax form in some communities, you need a computer. In the state of Iowa, the Department of Revenue put their short form only on the Internet. It was not available in a paper format at all. I don't know what stats they used in making the decision to go this route. So if a person wanted a form to do his or her taxes in Iowa, that person had to go into the library and print out a form and fill it out. It cost them 10 cents to print it out. One library got to the point where they just preprinted them out and then charged the patrons 10 cents for the form because so many people were coming in for them.

It's just really everything is going to the Internet. More and more state, local and federal forms are going on the Internet. To fill out a FEMA form, you need a computer. In the states that were impacted by Katrina, more and more people went to public libraries in order to fill out the forms, libraries being one of the few places that had Internet access after the hurricane struck. That is something to think about when you

want to look at a public library and they are the only ones that had Internet access. Nobody actually talks about that.

So, what do we want to know? Do funding agencies understand the importance of the libraries? I have a real quick story to tell you. There's a town in Iowa called Marshalltown. The library is in a Carnegie building with this really funky attachment on the back that they built in the 70s. They want to build a new library. The city council doesn't see the need. So, the Friends of the Marshalltown Public Library and the library decided to raise money and they raised \$5.5 million towards the new building. They were able to raise the funds for the building, hire an architect, get the planning done, and have a bond passed without the input of the city government. The city has been cut out of the loop because the city didn't see the need—but the public did.

You need to get your stakeholders involved. You need to educate the stakeholders so they understand why a library is necessary. It is a community space, not just a place with computers, but a community space for meetings and other events. Another issue was the adequacy of the computers and other equipment: many of the 14 libraries I saw had computers that were 5 to 7 years old. They couldn't afford to update them.

Why are the patrons using the computers at the public library? Is that the only place they had to go? That's what I saw, but many of the funding agency folks think that everybody has a computer and everybody has Internet access. What's needed, therefore, is a process of education.

## ***Technology and Information Transfer Through University Engagement—Paul Adams\****

I would like to discuss two different areas of engagement by the University of Illinois Graduate School of Library and Information Science. They take the form of student service learning projects in East St. Louis and West Africa.

The East St. Louis project started with the installation of public access computer labs. The computers are donated to Prairienet, a unit of the library school. Graduate students refurbish and network the computers and install them at sites in East St. Louis. Our partners are churches, day cares, community centers and other organizations that serve the public. Within the last seven years we have installed 54 labs in the metro east area.

Our second program in East St. Louis is a group we established called the Teem Tech Team. It's a group of high school and junior high kids who are interested in learning more about technology, especially the hardware aspects of technology. One of the things that we realized when we were down there and talking to folks: We can put in as many computers as they could possibly want in East St. Louis, but what happens to these computers when they go down, when they get too old? We're 150 miles away. We cannot send students down there constantly to address the maintenance issues that these computers are going to have. So we thought working with local people who had identified youth who were interested in this type of project, we would train youth and over time they would take over some of these roles: fix the computers that are in their churches, in their senior centers, and in their neighborhoods. So that program's been going on for about two years, and it's kind of a pro-rated program. We started in the mornings with the youth. teaching them the skills, and then once they completed basic training so to speak, we moved them to an afternoon session where they got more in-depth training but they also started to think in terms of entrepreneurship. Could they set this up as a business? How could they possibly address all these different maintenance needs? And also pay for the costs: if you need a modem in a computer, something goes out, you need to replace it, so there's kind of a cost factor. So we have them working on a business plan and trying to develop this as an entrepreneur model. Meantime, we've brought in additional youth in the morning session, and hopefully we would see this being sustained, cause as the kids in the afternoon session graduate, the younger ones coming in the morning session move to the afternoon session and they mentor the next group, so on and so forth. We think we have a pretty nice sustainability model there.

The third project in East St. Louis that I'd like to just comment on briefly is Community Concepts. It's a community theatre and we are working with the founders of the theatre and their primary interest is to train youth on multimedia and stage production skills. So they're a community theatre. With theatre you have audio, you have video, you

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\* **Paul Adams** is the director of Prairienet, a unit of the University of Illinois Graduate School of Library and Information Science. Prairienet works with disadvantaged individuals and communities to bridge the digital divide. It offers an opportunity for students and faculty to apply their knowledge and skills in practical applications that provides immediate benefit to communities (see <http://www.prairienet.org>). Paul Adams has served with Prairienet for the last nine years. He has an academic and professional background in urban planning and community development. (padams@uiuc.edu)

have stage production, all these different components. So they work with the youth on Wednesday and Thursday evenings and ultimately – there’s a show every other Friday—the youth are handling all the logistics and then that show is put on public access television. So the youth have the experience and they also get to see the end product too. And I’ll tell you the product is pretty impressive.

So we’ve talked about Champaign. We’ve talked about East St. Louis. I’ll move briefly into Africa. One of my former graduate student assistants was from the island country of São Tomé and Príncipe. São Tomé is the smallest country in Africa. It is the size of Champaign County geographically and has a population of about 200,000. It used to be a Portuguese colony, became independent in 1975, had its first free elections in 1992, first president was in 1993. So we’re talking about a fairly young country. My student had arrived at the University of Illinois and proceeded to get an MBA and then a masters in library and information science. Since he was on a Fulbright scholarship, he was required to go back to São Tomé for a period of two years. He’s been there a little bit longer, but has become influential member of the government. When he was in Champaign he worked with me on the East St. Louis project. He saw the benefits of service learning, he saw the benefits of bringing faculty and students to a disadvantaged community. And so for a couple of years he would email me and say, Paul, I’ve got a great idea, why don’t you come to São Tomé and see if we can’t implement the East St. Louis model here. So last year I finally broke down on a cold winter day in March and said, Going to the tropics is not that bad of an idea. I flew in to see him and spent ten days chatting with him and other members of the government, primarily on technology issues. They have Internet access, but it is limited to the elite. There are a couple of cybercafés but you have to pay for the service. Since my former student was involved in library education he introduced me to the folks at the national library. There were two computers. Neither was set up to the Internet; neither had any library software. So right away we recognized there were some things we could possibly do. I came back to the U of I, talked it over with faculty and students, and everybody said, boy this sounds like a great idea. Both for the students to do some service learning and for us to learn a little bit more about how things in Africa work and how we might be able to intervene. So last month I took several students with me, not just library students.

We went to São Tomé and we did a couple of projects. One of the projects was to set up a computer lab at the national library. We literally had to take the equipment with us in our baggage. We ran into a number of different challenges, such as the difference between power in the rest of the world and the US, parts that we had forgotten, challenges that anyone working in a community technology center is going to encounter, only ours were magnified because we were in Africa. As in East St. Louis, we realize you can’t get a lab to everybody, you can’t get a computer in every home, and the population of São Tomé is scattered in the mountains and plantations and remote sites. So we’re working with a not-for-profit in Champaign Urbana that has a really robust wireless protocol, to test a couple of different sites this summer.

We were able to set up the computer lab. It is now one of the few computer labs in the country and we have interest of going back and doing additional work. We talked with a number of people and what they want is computer access, Internet access, at all the schools and libraries. Which seems to be a pretty reasonable request. I’m currently

working with the administration and faculty at the University of Illinois so that we can scale this project up and go back to São Tomé this summer and set up an additional nine computer labs and other projects from other disciplines. I think I've got my cue and I'll take additional questions later.

## ***SkokieNet and SkokieTalk: Building community—Frances Roehm\****

Thank you for having me today. I'm always a little nervous following Paul Adams because of his eloquence, but realize that all of us in the community information and connections field are involved with projects that empower people and thus have stories that need to be told. So here I am.

I'm from Skokie Library and our community website has been up since 1995. Two years after Paul went live with PrairieNet, we got the idea too of getting quality information going 24/7. We never did computer access, we never had individual accounts for people. It's strictly been about taking the old community index or rolodex, which most librarians here know all about -- those index cards, rolodexes, and marked up sheets of paper that all libraries have used to stay current with community organizations and events, and putting them online. That was the same year Yahoo and Amazon came online, so we're proud of that, that we got it at the time, and we've been going strong ever since. Thankfully we have a good tax base, so we've been able to provide a good quality library in our neighborhood, and I have a great director who allows me to do this kind of community information. You won't find it in every library, not every library has quite gotten there yet, but we're hoping that with time they'll join us and mix it up with the community a bit more.

I checked the 2000 Census before I came, because I wanted to give you a bit more information about Skokie, a snapshot of sorts. The median age is 41.9 as opposed to 24.6 in Urbana or 35 in the US of A. About 20 percent of our population is over 65, and one of our fastest growing demographics is the over 80 set. So we have a large number of elderly people in our community. In the entire US the percentage is 12.4. Forty-five percent of our people speak another language at home besides English. Forty-two percent have a bachelor's or higher, which is slightly less than Urbana, and almost twice that of the US as a whole. It's a highly educated community but not necessarily technologically savvy, so it's an interesting mix.

We've seen that many of our residents are highly educated, and most of them are very much sold on education and libraries and their importance. We have a great collection in the children's room, where people can come in and homeschool their kids, or do some additional work with them outside of school hours, which a lot of people do in Skokie. So it's older and younger, and that's another aspect of our demographics, because people who are moving in tend to be second time home buyers, not first time, and their children are teenagers, so teens and seniors feature largely in our demographics.

Original settlers in Skokie were from Germany and Luxembourg. We were a major destination for Holocaust survivors after the war and that's probably what you've known about us. Since then we've opened our arms to all kinds of other folks. We had a

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\* **Frances Roehm** is the SkokieNet librarian at the Skokie Public Library where she specializes in building the village's community online at [www.skokienet.org](http://www.skokienet.org). She manages the statewide Illinois CLICKS! Portal Project. She is also a reference librarian and coordinates the teen volunteers at the library. Fran co-authored the Guide to Internet Job Searching, soon coming out in its seventh edition. She is also the webmaster for [www.ChicagoJobs.org](http://www.ChicagoJobs.org), a regional resource for Chicagoland job hunters and career changers, and assists individuals in using the Internet to find a job. (FRoehm@skokieliibrary.info)

major influx from the former Soviet Union in the 1980s, we have Filipinos moving in now, we have many Korean immigrants, we have a large East Indian population, the Chinese community is growing. All kinds of folks – speaking 97 languages in all! We have relatively low property taxes so people love that the money goes to the library but it's not that big a hit on the pocketbook. They value the Library and its many services.

So this is our SkokieNet website, we started out as I said in 1995. Slowly but surely, and I say that because as any of you working in community information know, there's a lot of finding, training, and bringing in volunteers, and maybe getting an occasional grant or an occasional student intern or volunteer, and you're always competing with other needs in the Library.



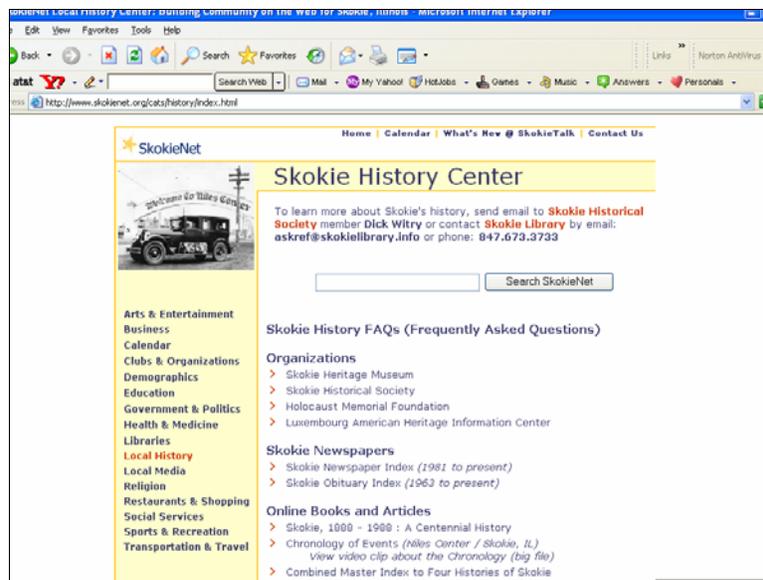
So how does all this technology fit in with all this people stuff? Because at bottom it's people, it's the end users that you're working with. Staff at the Library do much of the work, or did when we started, in 95. The content was static. All we did was go get brochures, flyers, from local agencies, the Park District, Chamber of Commerce, all these institutions in Skokie. It was our idea. The community didn't come to us and say, Oh, we need a web page! We went to them and got the information, scanned it, popped it up on the Internet. That's how we started. The community for the most part was not aware of the implications or possibilities of the graphical user interface or the Internet. They just weren't aware. We did that part. And when I came in 1997 I sent out my first mailing to the Chamber of Commerce list and received only 3 responses out of 850 letters. That was disappointing but we turned it around over time. I had volunteers to help me.

At the same time Digital Cities Chicago, the Tribune operation, was getting into the local information market; they started offering free web hosting for community groups. Bill Gates was doing something similar with Sidewalks, Chicago Sidewalks. And Yahoo Local was created. Those all dried up or disappeared after a while. Sidewalks is just a directory now. Yahoo is more or less a directory. Digital Cities didn't last. I think it's because there's not a lot of profit coming back to whoever's taking on the job of

creating and sustaining a community portal. Local information is hard to keep up to date, it's hard to bring the community along, because these are just regular folks who are representing an agency or a club and might not have the time or the skills to help work on it. We did focus on non-profits and social services, and those are the pages that are the most extensive, because we didn't want anyone to fall through the cracks. If there was a social or health-related service that someone in Skokie could benefit from, we wanted to make sure they knew about it. Free web space for organizations and businesses was also part of our service, and slowly we grew.

This is our Skokie History page. We have whole books, hundreds of pictures, and other local historical resources online. Over time we've developed partnerships with organizations, including the Historical Society. We did a project with Northwestern University, where they created the web page template for us and our staff and volunteers digitized the history book and added the content to the web template. You can see that we're always trying to leverage what we're doing to get good content online and sustain our virtual neighborhood.

We have a phenomenal group of volunteers, community advocates, and others who work with us. Staff are still creating most of the content and I think that's always going to be the case. We have a few individuals outside the Library who routinely or occasionally post information. I read an article by the creator of the H2O community information blog in Watertown. She has just a handful of people who are really into it, some every once in a while. So you really have to work to bring people in, and also need to have some staff or volunteers who'll help on a continuing basis.



I had one retiree who volunteered to go door to door. She had a nice little briefcase and we put in some laminated pages from the website for her to take with her. She met many who didn't speak English that well and thought she was soliciting, rather than giving away this wonderful service on the Internet! But God bless her she went out time and time again. She never gave up or got discouraged. Our volunteers range from

tweens to octogenarians. I have two octogenarians who make phone calls for me. Marge called me from the local Medical Center to tell me she was sorry she was in the hospital and couldn't come in to do her volunteer time! And I have Manny who has to have one of those reading machines in order to see what he's doing while he's making his phone calls. They are wonderful people and they all become advocates for the library. It's not just the community web that we're working on, it's advocating for the library, going out and telling other people, oh the library is so wonderful, it's doing this, this, and this. Which really helps when it comes time to get help from the community.

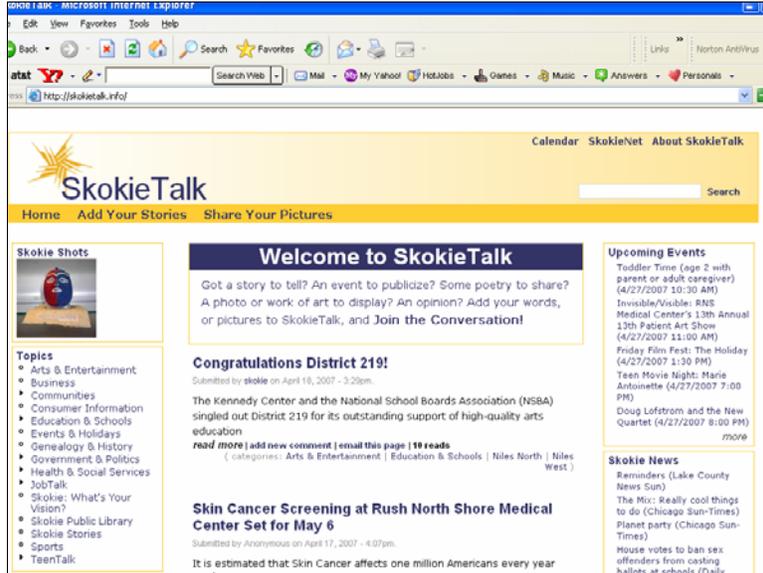
Shameless promotion: I don't think I mentioned that, but I've been doing it and will continue to get out and about and make those connections in the community whenever and wherever possible. It plays a vital role in the development of this virtual neighborhood.

Very few of our businesses and organizations have the technical expertise and/or time to contribute their own stories, events, etc. I have one colleague who's smart and very good at connecting with the community, but I've several calls from her in the last week about putting something fairly simple on SkokieTalk. I'll show you that in a few minutes and you'll see how easy it is, but it can be hard for regular folks who might not be information professionals. They know their subject, they know all about their agency or institution, they have information to share, but they just don't have the skills. So as I say we'll continue to do a lot for them. We have classes, we do web design classes, we do one-on-one sessions with people, I'm on the phone a lot with people bringing them along. Part of my mantra is to help them reach the next step, and maybe they'll never learn how to photocopy, but we can show them again or do it for them so whatever the need, whoever walks in the door, we try to help them with that next step. And next time they may be able to do it, and might be ready for more information or to learn more tips for dealing with technology in the Library.

Thankfully today people do want to be on SkokieNet. It's not me calling them and saying, Hey, you need to be on our information system. It's them calling me. That's wonderful. Many of them are using our community calendar, not a lot, maybe ten agencies -- I call that success. We have our new interactive pages and I'll show those to you in a couple of minutes. That's SkokieTalk.info, our moderated blog where anybody in the community can post anything. We're going to be moving SkokieNet to that platform. We're using Drupal software and it means not only do we incorporate the links into the blog but we make it easier for everybody to be part of it: the librarians and our neighbors in Skokie.

And we still provide a great deal of assistance. We do mouse classes in our library. We have two labs. A lab for the kids and one for the adults. We do one-on-one classes. I mentioned the web classes. Specific topics on the Internet. We also have roving technology assistants; their job is to walk around the library and look for somebody looking puzzled next to a technological device! And we have our public service oriented LAN manager who can help from time to time.

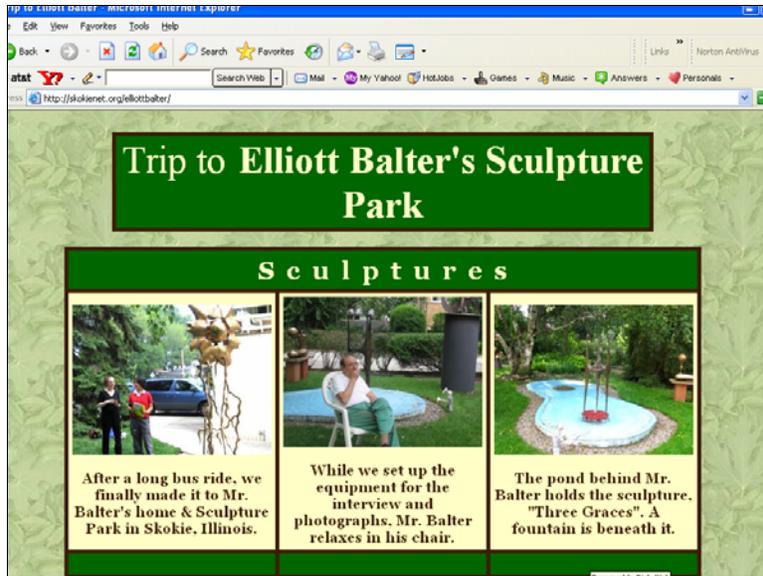
This is SkokieTalk.info. We're really proud of this. It took us awhile to figure out the software, but we've gotten a lot of people on board. There's a posting by Rush North Shore for an upcoming event, a skin cancer screening. We have all kinds of folks who are now sharing information, stories, events, pictures, etc. And we have a separate community calendar.



Our TeenTalk page is also a work in progress. It's not as interesting or loaded with teen appeal as I would like but the kids are posting things. Nvr2Die put in a blurb about the Virginia Tech shooting, that was really powerful stuff for him to deal with. And the April Fools' snow day we had. Then another teen posted information about the teen program. She embellishes all of her postings with the little face icon she created. The kids are also driving the process forward now. Before, we were looking to what we thought our end users needed, but today the teens are moving us. We take field trips with them. They are interviewing people. And with all, they are recording with cameras, an MP3 recorder, and camcorder, and they are expressing themselves online 24/7.

Skokie artist Elliott Balter died last winter. The teens had interviewed him the previous summer, so they were especially glad we had gone on the field trip to his sculpture park and visited with him. You can see what they created on our website. Our teens also went to the Festival of Cultures, interviewed people, and took their pictures. This year we're going out again and we're taking the camcorder and MP3 recorder with us too. We have two teams since the teens want to use all of the equipment. We'll have one team walking throughout the Festival and talking to folks, and one team stationed at a table under the Welcome sign for the event. The teens razz me about the teams being named Alpha and Omega (the beginning and the end), rather than Alpha and Beta (A and B) teams, but we stress the importance of every job and every member of the team. No B-teamers among our volunteers!

Last Saturday I worked. The teens found out I was working and so one of the girls said, why don't we come over and we'll tape the book talks that we did for school? I said (of course), great idea! So I had four of them in the office bubbling over with enthusiasm as they worked to record their book talks.



We've got our MP3 recorder and they're loving that and working with other technologies, posting to the TeenTalk blog, editing the files, really involved, putting what matters to them on the web. They also want to have a program at the end of the school year so we can get other kids on board. They want be part of the program so they can show other kids how easy and fun it is.

My very quick last story is about Regina, who is an octogenarian. I mentioned that we still do a great deal of the work for many of the adults who want to contribute to our web pages or blogs. Regina was at the library today, she stopped by with another story she'd written. She's one of our Holocaust survivors and when I first talked to her she'd never had a family member sit down and listen to one of her stories about that time in her life. She and I started talking at the Reference Desk one day and I found her so

charming that I asked her if she'd like to write a story. She said, oh sure. She's written three or four and they're very touching. We put them online and for the first time in his life her teenage grandson called her and said grandma, tell me more about this. From there her son called to tell me what a great thing it was for her. And we got her hooked up with the schools, so now she's going out working with the kids in the schools, answering their questions and telling her stories, and she's a great storyteller. Her education was stopped at a critical time in her life so she thinks she's missing some of the grammar skills, but she's a great storyteller.

And that's it. Thank you, thank you for listening.

## ***Bronzeville, Chicago's Black Metropolis: Innovations in Cultural Heritage Preservation—Harold L. Lucas\****

My name is Harold L. Lucas, and I am the President/CEO of the Black Metropolis Convention & Tourism Council (BMC&TC), which is a 501c3 not-for-profit Destination Marketing Organization (DMO) that focuses on developing the Black Metropolis National Heritage Area as a premier international heritage tourism destination. BMC&TC also owns and operates the Bronzeville Visitor Information Center, which is located in the Supreme/Liberty Life building at the Gateway to the Black Metropolis Historic District on 35th and Martin Luther King Drive within the Southside of Chicago.

I am also e-publisher of an online internet portal called [bronzevilleonline.com](http://bronzevilleonline.com). . The community-based information portal ([www.bronzevilleonline.com](http://www.bronzevilleonline.com)) embodies a strategic focus on web-based initiatives to inform others about the Bronzeville cultural heritage tourism initiative and stimulate market demand worldwide. Offering a multi-dimensional approach to online marketing provides unique interaction, discovery and adventure. If the BMC&TC internet marketing program effectively provides compelling content, exciting experiences, and authentic memories of Bronzeville, then travelers worldwide will be attracted to the Black Metropolis National Heritage Area. Currently, BMC&TC has only scratched the surface in terms of the potential opportunities for marketing Bronzeville to a more international market through the online site. As BMC&TC continues to evolve our content strategies to become an online destination focused on authentic experiences, we will create a shift in distribution of power from the intermediaries directly to our destination marketing organization. Bronzeville, which is also known as the Black Metropolis, was the destination for the Great Migration in which half a million African Americans migrated from the South between 1890 and 1950. The Great Migration was best documented in a book called *Black Metropolis* by two gentlemen, Horace Cayton and St. Clair Drake.

The basic goal of our work is to enable a comprehensive community planning process for the development of that geographic area in which we as African Americans were restricted up to 1948. The story that comes out of that is the Lorraine Hansberry story, the Hansberry vs. Lee case where the University of Chicago through the Woodlawn Homeowners Association literally blocked Blacks from moving into Hyde

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\* **Harold L. Lucas**, CEO of Black Metropolis Convention & Tourism Council in Chicago, seeks to support the growth of a vibrant heritage tourism district in the historic Bronzeville community. Black Metropolis Convention & Tourism Council (BMC&TC) promotes community-based economic empowerment and wealth creation by fostering entrepreneurial opportunities linked to the establishment of Bronzeville as an internationally renowned historic and cultural destination. The past and present center of African American life and customs in Chicago, BMC&TC is working collaboratively to harness the energy of current and future urban redevelopment in Bronzeville to create a commercial destination of unparalleled diversity and attractiveness. Bronzeville has emerged as a premier African American heritage tourism destination and is an essential part of what makes Chicago a remarkable “World Class” American city. Most important, as a direct result of Mr. Lucas’s 30 years of effective community organizing at the grassroots level, Bronzeville today is understood internationally as the birthplace of Chicago’s most significant cultural forms. Bronzeville is strategically being marketed by the BMC&TC as the home of a vibrant Black renaissance community unfazed by the burdens of urban re-gentrification; it is economically and culturally independent, and is being repopulated by an entrepreneurial Black middle class that lives in harmony with its lower-income neighbors. <http://www.bronzevilleonline.com> ([visitbronzeville@aol.com](mailto:visitbronzeville@aol.com))

Park and other areas of the city and through legal restrictive covenants contained this migrating population of Blacks coming to the South Side into this narrow band of land that was approximately three and a half miles long and a mile and a half wide. It became known as Bronzeville. BMC&TC also seeks to provide technical assistance and support in heritage tourism development services to other migration communities in Chicago, like Morgan Park, Englewood and North Lawndale.

Fast forward to 2007, we have taken that geographic area, flipped the paradigm, and are now claiming it as an authentic, international African American heritage tourism destination. We focus on the area from 18th Street on the north to 67th street on the south, the Dan Ryan Expressway on the west but including (because the Dan Ryan wasn't there at the time) the four blocks west of the Dan Ryan between 35th and 55th streets right behind White Sox Park to 55th and over to the B & O Railroad that separates us from Canaryville and Bridgeport that is an area called Fuller Park and Armour Square. The eastern boundaries are Cottage Grove from 67th to 47th Street, then turns east to the lakefront and back north to 18th Street. Furthermore, we now view these neighborhoods contiguously as an internationally significant African American heritage tourism destination. As we move forward in time to 2016, we plan to create a map of the city of Chicago for the Olympic Plan, which will feature an emphasis on the heart, soul and economic foundation for developmental growth of the Black Metropolis National Heritage Area. Due to our future objectives, we have to build a strong, bottom up foundation for the community inspired Olympics' related project. Not only do we need to plan for the Olympics, we also have to prepare for development of other revenue generating commercial and retail venues from the present to the year 2020. Since we have started building this heritage tourism destination, it has created great opportunities to add to the cultural richness of Bronzeville by collaborating directly with the community residents as stakeholders.

As a part of the home page on our Web site, we list a number of activities from our community with pictures that flip in and flip out. I'm going to focus on developing an issue I started with the Chicago Board of Education and the Bronzeville Neighborhood Learning Network. We received a technology access grant from the State of Illinois several years ago to work on creating a Digital Network Infrastructure in Bronzeville: we support a number of community technology activities, but the initiative that I'm really most proud of is a project with the Amelia Earhart grammar School. You fear that you are not reaching the next generation, or I should say three or four generations behind yourself, but these seventh graders from Amelia Earhart School on 93rd just east of Stony Island called me up one day and said, "Mr. Lucas, what do you know about 6140 South Rhodes?" I said, "What do you know about 6140 South Rhodes?" And they told me, "Well, that was the house that Lorraine Hansberry's family moved into and the place where the Lee/Hansberry case was fought over and we want you to come see our display before we take it down." So I got in my vintage 1982 Mercedes Benz and rode out to the school and this young man there had the entire Woodlawn Restrictive Covenant case laid out on these boards, with lights attached to the boards, and knew the history. This other young lady was absolutely brilliant and understood the theory Black Metropolis and they said to me, "Mr. Lucas, we want you to help us, we want to save 6140 South Rhodes and turn it into a house museum on Earl B. Dickerson's life's work and the restrictive covenants." Now, you can't pay somebody, you can't give me a million dollars for the

feeling that gives me to hear that the younger generation of African Americans has bought into the protracted struggle for emancipation in this country. And when we talk about Earl B. Dickerson, we're talking about one of the top ten Black men in the nation, put him up there with Dr. Martin Luther King Jr. Du Bois, Robeson, people like that who literally did the emancipation work and put the infrastructure in place for the Supreme Life building that we sit in today and that has emerged as the base of operation for our Bronzeville Visitor Information Center. So the kids are working with us. The conference room is actually Earl B. Dickerson's former office. We've got a big picture of him up in the Earl B. Dickerson conference room, and he looks like he's smiling down at us too. Involved grammar school students are going to help us lay out some of his most significant quotes, pictures and artifacts in our conference room and make it interactive.

We have three primary service areas of activity: historic preservation, heritage tourism, and information technology. In terms of historic preservation, we put the Black Metropolis Historic District on the National Register in 1983 during the Honorable Mayor Harold Washington's administration. When it comes to National Register designation, a local municipality usually complies within six months. In Chicago, it took us another 14 years. We didn't secure the Chicago designation until 1996. And that shows you what the political climate of the city of Chicago is with regard to preserving authentic African American community initiatives.

Since then we have moved through our 1st Congressional District Representative Bobby L. Rush to gain congressional support for the National Heritage Area project and have been working on that for four years. We work from the five (5) principles of the National Trust and they are: Save the site; find the fit between the site and the community; find the resources, make the site come alive; and collaborate as broadly with as many community stakeholders as possible. So we saved the Supreme Life building, one of eight buildings and several monuments that make up that district.

We are currently operating out of one of those key landmark buildings on the corner of 35th and King Drive, the Supreme Life Insurance Company offices, which has been totally restored. Had we failed to save that building it would have been demolished and replaced by a now bankrupt food market. The Supreme Liberty Life Building currently anchors the Gateway to the Black Metropolis Historic District. We were able to collaboratively partner with two other neighborhoods, Chinatown and South Loop and secured a \$10 million grant from Metropolitan Pier & Exposition Authority (MPEA), the quasi-city-state agency, and the Illinois Department of Transportation (IDOT) to build a "Walk of Fame" along King Drive beginning at 25th street composed of important African Americans who contributed to the development of Bronzeville that leads us right to 35th and King Drive. There are 91 plaques on both sides of the street coming up to 35th Street and two (2) monuments—the Victory Monument at 35th was already there and then the statue commemorating the Great Migration to the City of Chicago was added at 26th street. The key quote that I have to bring forth here is from Richard Wright in the forward to the book Black Metropolis. He asked the quintessential question of Black folks in 1942, "Will the Negro find a meaning in his humiliation, turn his slums and his sweatshops into modern cathedrals out of which will be born a new spirit that will guide him towards freedom?"

And 65 years later we stand on the shoulders of Truman K. Gibson Jr., Irvin Mollison, and Earl B. Dickerson, the three attorneys who opened up the restrictive

covenants documents and proved that only 60% of the people signed off on it, which led to the lifting of those restrictive covenants and the ability of our people in the early 1950', to move out into Park Manor, Chatham and other so-called middle-class communities south of Bronzeville. As we move through the present, the demolition of public housing and the CHA Transformation Plan has relocated low-income residents out of public housing and has thus reduced the crime rate in Bronzeville. Unfortunately, crime has gotten worse in the neighborhoods where those people were moved, Park Manor, Chatham South Shore, Roseland, Englewood, and south suburban communities which remain segregated regionally. And that's a major problem.

Here are some facts we have highlighted and developed with Chicago's Black Metropolis, Bronzeville, Innovation in Cultural Heritage, Preservation and Place: Bronzeville is a city within a city; it is the Black business center and metropolis of the Midwest; because of its historical blueprint, good bones, excellent infrastructure, quality of housing stock, being five minutes from the Lake, ten minutes from the Loop, and having the best parks in the city, flip the map of Chicago, you'd be in Lincoln Park. It's housing construction dates back to the same time period, it has the same quality of housing stock. The community spent a decade saving the landmark buildings through a bottom-up community-based initiative, and elders and ancestors provided spiritual help, Professor Timuel Black and other people like that who also have provided that history, information, and continuity.

The Black Metropolis Thematic District, the seven buildings, the historical landmark designation in 1983, again, this was not acknowledged by Chicago until 1996. Community organizing, adapt reuse of historic structures, civic engagement, visioning sessions, planning charettes, we worked through all of those strategies over the past ten or fifteen years.

The restoration of Bronzeville is a comprehensive plan. We just elected Pat Dowell alderman of the 3rd Ward, who is an urban planner and was in fact the original executive director of the Mid-South Planning and Development Commission when we forged the Restoring Bronzeville Plan. The city never wanted to accept this plan, but we got them to accept it, and it's the blueprint for the redevelopment of the community. We're going to continue to use and enhance that blueprint and we expect to have great success because we think we have in Pat Dowell an elected official who is civically engaged, respects the public trust and who is trying to encourage community empowerment as the Alderman of the 3rd ward. Again, we are promoting the area as a premier African American tourism destination with multiple sites and attractions within a given destination.

We are working on a T3 project with the Regenstein Library at the University of Chicago and five Community Development Corporations. Together we conceived, categorized and created a GIS map that identified 700 sites as landmarks in the greater Bronzeville area, so from a landmark perspective this area of Chicago has 46% of all the landmarks in the city. So that's how significant the community is just in terms of historic buildings.

Enhancing community collaborations is what we do all the time. Outdoor markets are a major tool for civic/social enter-action and community empowerment: we hosted three last year, and we hosted six outdoor markets on Doolittle's school yard this year. I'm principal-for-a-day at Doolittle School, the first grammar school I went to; the

principal there is Ms Lori Lennix, who is the sister of the TV actor Harry Lennix. We're working closely with the staff, faculty and parents to bring our Bronzeville Mongo Markets into the community there as community events and public market place for acquiring antiques, black memorabilia and other valuable collectibles etc.

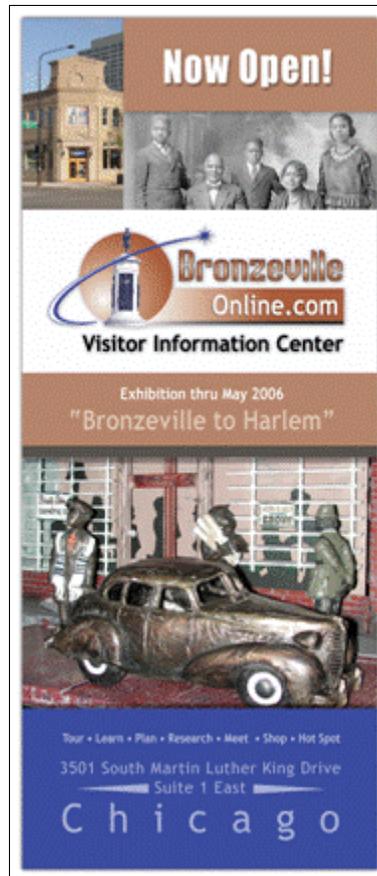


And this is some of the kind of housing stock that you see here. This particular house is the Ida B. Wells House on Martin Luther King Drive. We have historical and cultural capital beyond belief as well as transportation capital and human capital, which is the most important thing. We don't call people poor, we call people low income and that is the biggest issue in our community: alleviating poverty and moving people out of poverty into economic self-sufficiency. We do not want the low-income people to be removed, which is what happens when development is conducted from the top down. That's what they're going to do, remove the low-income people, tear down the cultural institutions in order to make the neighborhood devoid of African American cultural institutions like the Checker Board Lounge and Gerri's Palm Tavern two of our authentic cultural institutions that have already been demolished in the past two years and then erect cookie-cutter upscale residential and commercial development, the high-rise housing development and condominiums that will erase our recollection of our cultural identity. You're seeing that transition in the South Loop—they will get their new civic associations just like they got their new alderman. The 2nd ward was the original "mother ward" but is no longer because it's been gerrymandered north and west. So you see all the construction cranes in the sky coming out of the South Loop and the victory of a white alderman over Madeline Haithcock. She's a Black alderman who's traditionally been the alderman of the mother ward where all the Black politics started in the city of Chicago.

Incidentally, in 1955 the black community helped significantly in delivering 700,000 plus votes to the elder Daley from the five (5) wards (2nd, 3rd, 4th, 5th, and 20th Wards) that made up the Black Belt. That's how the relationship between the African American community and the Daley regime got started in terms of Democratic machine politics in Chicago.

Community assets such as historic preservation, affordable housing, preserving the built environment, cultural heritage tourism, cultural capital, information technology, transportation infrastructure, University Partnerships, hospitality services and workforce development training have become our current and future focus. Last month, we went to the Convention and Tourism Bureau conference at McCormick Place. Six hundred people turned out. The wait staff was entirely Hispanic. When I was a teenager I had the good fortune of working as a busboy at the Palmer House hotel, when the entire staff was African American. And they would have their badges and their levels of sophistication in terms of their skill sets in hospitality services on their chests. Hospitality, that's a lost art with regard to our community. We want to bring that back! We know who A. Philip Randolph was, the Pullman Porters, in terms of the igniters of the civil rights movement which came later on. So we want to bring that hospitality services back. We need to be building and operating 3 and 4 star quality hotels in the historic Bronzeville community, know how to run the front desk, not only in terms of hospitality but in general how to effectively greet guests and do it in such a way that you are providing superb hospitality service.

Our parent company, the Black Metropolis Convention and Tourism Council, got its 501 (c) 3 status in 1996. Our affiliate organization, Bronzeville Historic Preservation Society, is a civic association made up primarily of elders, retired schoolteachers, people like that who are committed to this African American cultural heritage initiative. [www.Bronzevilleonline.com](http://www.Bronzevilleonline.com) is our Internet portal. The Black Metropolis Technology Commission is our educational contract services organization affiliated with the Board of Education on increased technology access and the Bronzeville Community Development Partnership is a broad collaboration of community groups in Bronzeville who are focused on the international heritage tourism development strategy.



In our brochure we highlight historically significant buildings at multiple sites and attractions. The return of the Black middle class is key to the success of our community based heritage tourism initiative. They have come back—they began coming back ten years ago. The re-gentrification that is taking place now is not black to white but low income to higher income African American residents. For example: A guy moves in and put a big TV screen on the wall of his living room and it covers the entire wall. It turns out he's originally from public housing and he went to college got his engineering degree got a job with Boeing Airlines and was part of the group that brought Boeing to Chicago. So he's probably making \$250,000-300,000 annually. He moved onto King Drive and is part of the new gentry.

This just gives you a sense of how we are collaboratively building the Black Metropolis National Heritage Area project: the historic house tours, art gallery tours, the cultural tourism of the Black Metropolis Historic District, the National Heritage Area product, the neighborhood learning centers, the digital archive projects that we have going on, and all the civic engagement and capacity building activities we're cultivating to train adults, young and old in order to get them ready to own and operate retail development and entrepreneurial business enterprise within the cultural landscape of the historic Bronzeville community.

***Understanding and implementing technology in local communities: What have we learned today? What are next steps?—Tracie Hall, Ann Peterson Bishop, Doug Schuler, Charles Benton, and Susan Roman***

**Tracie Hall\***

I have some questions that I think are important to have us at least think about before we leave. Before I pose the first, I want to situate it and conceptualize it a little bit because people here have done such a great job of doing that and I want to try my hand. My own consciousness concerning the radical possibilities for community informatics has been really opened by New Orleans, post-Katrina New Orleans. I once interviewed there for the Assistant Directorship of the New Orleans Public Library and I remember that some of the people seemed to be holding on to this very traditional and somewhat reactionary notion of what a public library should be. I knew right then that I was really the wrong person for that. To me the public library is one of the community institutions that should be the least bound or restricted. By its very nature it has to be malleable if it is to respond to dynamically changing individual and collective user needs. I went back to New Orleans on the heels of Katrina and saw the way the people had created tech centers themselves organically and in spaces that the public library or any other institution had not thought about. They really created a tech map that I'm hoping at some point becomes a blueprint of sorts for public libraries and other types of people's libraries.

We have talked about how different context can be for information. In that vein I have some questions that I think started to bubble up from Doug's presentation. I started at the Seattle Public Library and I remember the Seattle Community Network when it looked like Pong. It was orange text against a black screen. Back then I didn't envision how indispensable that kind of connectivity would be. Doug, I salute you for your pioneering work. I'm so glad that you're here.

My first question is: Is e-technology creating static or dynamic spaces for socio-political discourse? I don't have an answer to that but I think that is a question we have to tackle. If we are just transferring from one media to another, are we really pushing the envelope? Are we really opening up new avenues for inter-action, collaboration, and mutual understanding, or are we just transferring exclusive dialogues to new mediums?

The next question is what role does residential or occupational access to technology play? I'm interested in rewriting the e-tech map. I have a feeling that people who have access to technology at their fingertips—almost constant access—are living a different life than people who don't. I would like to see that question pushed around a little bit more because for every Bronzeville Online, I'm thinking about other communities that are similarly situated from which we may never hear. It is those silences that we need to pay attention to. How are employers and cities where a large

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portion of people have “no access to access,” further disenfranchising people when they say, “You can’t be on-line. You can’t have access to e-communication here. It is not our responsibility to provide that.” What happens to those people?

The last question that I have is what are the possibilities and the limitations of wireless connectivity? I know that we’re pushing that agenda here in Chicago but I think that in terms of building new communities and new landscapes I think we have to push past believing that wireless access is the end solution. Wireless is not the end. It alone cannot create information access equity.

In the work that I do, I’m constantly asking myself whether any passivity on my part is due to my taking information access for granted. Is my passivity another type of privilege and am I exacerbating some of the inequities that I see all around me by not questioning the possibilities? For me these proceedings have pushed me to ask new questions.

### **Ann Peterson Bishop\***

It’s been a real exciting day. First, I can talk about the research session that I went to and that was with Kathryn, Karen, and Salvador and the research that they presented just blew me away. It was really well done. It presented the big picture. They presented their research which was large-scale statistical analyses related to who has access and not to the digital divide. Kathryn’s was about a large state project, the Access Indiana initiative. She has done research to see which of the community networks funded under that initiative still exist and which do not and why and also what were some of the politics and some of the issues and dynamics behind that.

The large-scale statistical studies that Karen and Salvador presented were great because they showed us some of the hard facts. They showed us that the digital divide—hopefully we can come up with another name for it, as it’s not really appropriate—very much does exist. In fact, you can say it’s getting worse as the work that they did really points to the persistent influence of income and ethnicity that people have been trying to say are fixed now. They really delved into that aspect of the data to show that in fact it has not been fixed at all and to pose questions to the data that get us a little bit closer to answers about what is really going on and to also push beyond. They both had very

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At the University of Illinois, Ann is co-director of the Community Informatics Initiative (<http://www.cii.uiuc.edu>). She teaches courses in participatory action research, social justice in the information professions, and community information systems. Ann received the University of Illinois Excellence in Public Engagement award in 2002 and was presented with the Jan Hawkins Award for Early Career Contributions to Humanistic Research and Scholarship in Learning Technologies by American Educational Research Association in 2000. She has served on the advisory boards of the Association for Community Networks (<http://www.afcn.org>) and the Community Informatics Research Network (<http://www.ciresearch.net/>). Ann is the Associate Editor of the international Journal of Community Informatics (<http://www.ci-journal.net>), and an organizer of the Community as Intellectual Space Symposium, held annually in Paseo Boricua, Chicago. ([abishop@uiuc.edu](mailto:abishop@uiuc.edu))

intriguing questions for us based on their work having to do with the interpretation of this quantitative data—what have they found so far and what are some questions that they think are still before us in trying to understand why there is differential access and use of technology? It was a terrific session.

One of the things that struck me is that today's speakers have identified multiple methods for action and social transformation. We can identify and think about these and the ways we can pursue them all. The main impression that I got from Doug's talk was a focus on the strategy of activism. That's one strategy for transformation. I know that Mike Maranda does a lot of work in the policy arena. That's another strategy. We heard comments about personal commitment and the role that plays in shaping the future that we want to see. I think it's important that we not lose track of any of these and we recognize them all and consciously try to diversify our portfolio of strategies for social change.

A strategy that I have been learning more about lately is social entrepreneurship. Have people heard about that? There is a body of work on this from which we can learn how to create social value in the same way that entrepreneurs create commercial value. This is important because it is about activism and personal commitment but what I heard a lot today is it's also about creativity and then making your creativity happen. Sometimes it's not that there's resistance and that there's people you have to move out of the way in quite the same way. It really is akin to the processes of entrepreneurship. I think that is something that's worth looking into.

Another issue is that when we are confronted with barriers and obstacles and things that don't seem to be moving, I know that I'm seduced into thinking that maybe I have to think smaller. Maybe I'm trying to bite off too much. Maybe I'm trying to go too fast. What has also occurred to me today is that, no, we need to think bigger. We have heard about people who thought bigger. Success and thinking big pulls in more big ideas and more success. Something that I've been reading about is Bill Strickland and the Manchester and Bidwell technology centers and so that's also something I would recommend in terms of what happens when you think bigger instead of smaller.

However, I think the flip side of thinking bigger is to not lose sight of the smaller. Look at what's happening in New Orleans. It is amazing to see the youth you work with, Fran, and to hear that they say, "Can we come and do our book reports? Can we do that today?" It is amazing to see all of the work in Bronzeville and the students there and their ideas as to what they wanted to do next. It is so important not to lose sight of the small.

In terms of technology literacy, what has occurred to me today is that one part of it is developing critical participation, which Karen touched upon with her concept of digital citizenship. As we heard in that research session, as people are dropping out and choosing not to use the technology, they may be missing out on developing a critical understanding that would inform participation. Kathryn brought out these issues in her presentation. Part of education and technology literacy is the development of that ability to critically assess our own situations and make decisions about what technologies we want to use and when and why and why not. Some of these ideas tie in to things that I have observed in working in west Chicago and with elementary school kids in Champaign. For instance, I heard one of the youth talking about the power of hip hop and doing a performance. He was talking about how in Humboldt Park, which is struggling with gentrification, computers and the Internet come with connotations of mainstream

oppression, of crass commercialism, of everything that is ruining their neighborhood. That's what I mean about that sort of critical ability, which is to understand and make your own choices.

Doug mentioned the concept of civic intelligence and quoted Langdon Winner who asked, How should we live together? I think that really is the core question before us. How do we live together gracefully in a manner that is just and where everyone has a chance to flourish and be productive? I want to hark back to someone I think showed us a way to do that and whose work is being resurrected now. That's Jane Addams of Hull House. Someone mentioned the Pullman tragedy and strikes and violence that resulted from that. She wrote an essay on that in which she developed the concept of affectionate interpretation. It also has very much to do with civic intelligence. How do we bring together and open ourselves in an affectionate manner to what each person has—the knowledge and skills and capabilities they have—and how do we find ways to bring that together to reduce these divides and the violence? She says,

Our thoughts at least for this generation cannot be too much directed from mutual relationships and responsibilities. They will be warped unless we look all men in the face as if a community of interest lay between. Unless we hold the mind open to the noble fiber in each man. To pull these many fibers, fragile, impalpable and constantly breaking as they are into one impulse. To develop that mere impulse through its feeble and tentative stages into action is no easy task. But lateral progress is impossible without it.

I see that's what we're beginning in this meeting as well.

One last point that I wanted to make is that the type of embeddedness in community that was represented in Hull House was not a social service in the eyes of Jane Addams. It's an experiment in a way of living in which people do not segregate their living arrangements according to socioeconomic and ethnic and cultural status. That's what it is. It is a way of life. One question with community informatics is how do we know what communities want? One way we know is by actually participating in the community so it becomes our community—that's what Hull House did. It's not that there's a university and a community. There's no us and them. There's one world. There's one place. There's one street. That's where we are. We occupy the same space so we should think harder about that. Thus I think we need to look for ways that we can develop long-term relationships with communities. I think what Harold told us about Bronzeville gives you an idea. That's the type of relationship that University of Illinois has with East St. Louis and that's the type of relationship we're developing specifically around community informatics with the local community in Humboldt Park. It's a relationship that allows us to learn and take away and shape the profession; that's when I feel that we are contributing something. We need to call upon their affectionate interpretation of us as well as to find that space where we can come together.

### **Doug Schuler**

I'd like to add a couple of thoughts in response to Tracie's questions and Ann's comments. My first thought is that we don't want a discipline of community informatics that doesn't have Jane Addams in it. To me this should go without saying, but I since I

teach at a non-traditional college and I didn't get there via the usual route, I'm not sure I understand all the rules — spoken and unspoken — of academia. I don't quite understand why even today people seem to want to strip the heart and soul out of their scholarly inquiry. I like theories. I like models. I like the specialized vocabularies. I like all of it and I find it fascinating. I even think it is — or at least *can* be — useful, but why should we pretend that we're purely objective and there is no subjectivity, as though we have no values, as though we're just technicians?

I've noticed an interesting way that some academics have figured out a way to completely isolate themselves from everybody else. They've invented jargon that no one understands so nobody really cares what they say. It's safe and they think they are quite radical in their own circle. Instead of coming up with something with meaning, there seems to be a lot of empty rhetoric. There's no connection to the real world. There's no *Jane Addams*. There's no *Bronzeville*.

Now I'm not trying to defend myself because I spoke from an activist position today but I truly think that our community needs to be motivated to be action-oriented in one way or another. Within this community we should conduct research and build theories and be very rigorous about our thinking and our reasoning but at the same time I think it's very important to get out there with the people and with the public. There's a certain amount of struggle going on now over militarism, the environment, economic fairness, etc. and if we decline to get involved, the wrong side is more likely to prevail — again. I'm not saying that we should start fights just for the heck of it, but sometimes you need to push and to get pushed. I want researchers and academics to be part of life, not to be nattering around in isolation in an ivory tower. All of these things have to work together and that's why I like the term "intelligence" to describe one of our watchwords. In my mind "intelligence" combines thinking with the necessity of action. I don't know what other word to use. I was searching a suitable expression from Dewey. It's probably there within his 1,000 written works but I didn't find what I think I'm looking for within the essays and chapters that I read. I know, however, that I don't want community informatics without *John Dewey* either. Many of these thinkers and ideas are very important and they need to be part of our consciousness.

To respond to one of Tracie's questions, I think one of our key tasks is promoting civic discussion. I don't think that throwing computers at people is an efficient way to promote civic discussion. It might happen. One person in a thousand might do it, maybe more if we're lucky. What I hear is that in these developing countries all of a sudden kids have access to porn. They routinely are seeing images that their parents have never seen. It reminds me of what someone said today: that technology can be seen as an intrusion, and it is in some ways. I'm a First Amendment believer all the way, but that doesn't mean I'm going to go bring hate speech or porn into some people's house and say, "Take a look at this, buddy." We have to remain open to critique. After all we're not a subsidiary of the computer industry. This idea of one laptop per kid seems to me to be a distraction. That and nothing else. What will people do with the computers? I'm sure there will be a lot of game playing. Not to sound like a prude, but there are other things besides playing games on a computer. I want to put computers in the hands of people but I don't want to fetishize computers as magical panaceas.

The other thing I'm interesting in pursuing is the question of how we as a community can get along. To me this means we need to be a community and we need to

be smart about what we're trying to accomplish as a community. Although it seems a little more technocratic every year, there's a field in computing called computer supportive cooperative work, CSCW, that holds a conference every other year. These people are trying to figure out how best to use computers to collaborate on projects and processes. If your collaborators or colleagues are on the other side of the world somewhere, you'll probably need some assistance to be able to work together effectively. I don't know if they want us at their conferences, but our work brings up all sorts of important and intriguing research issues. It's a critical issue and if we can't get along, how are we ever to speak as one voice? I think that's part of the reason why a lot of these community networks are not with us anymore: people couldn't get along. The question of how we collaborate is very important.

The other related issue I'd like to raise is how do we deliberate and make decisions? I'll put in a minor plug for a project I'm working on. We're working on a system at The Evergreen State College where I teach and the Public Sphere Project that facilitates online meetings. As far as we know, it's the only online system where people can use Robert's Rules of Order in a distributed way, over distance using the Internet. People make motions in the usual way and the organizations that use this approach in their meetings can use the system to help take care of its business. We're working on a new version that we think will be pretty cool. The system is still evolving but we thought we'd start with Robert's Rules because many organizations do use them. We're not trying to force Robert's Rules of Order on people, and so we're making the system tailorable. If you don't want to use Robert's Rules entirely, you can edit individual rules or say you don't want this or that rule. We're working with Fiorella De Cindio and her colleagues in Italy on the next version since we want to internationalize it.

I think we need to push in the areas that we're interested in and not wait for somebody else. Our communities are different. We're not a corporation. We exist in the world but we can shape our own goals and strategies. Although the pressure to mimic is strong, we don't have to be a carbon copy of the other disciplines.

## Charles Benton\*

What have we learned today and what are some next steps? I'd really like to bring my remarks down first into what I've learned and heard and then throw on the table a couple of next steps that are very practical and specific.

When you started in your opening remarks, Kate, you said the key question is how is Chicago going digital? A greater understanding of that process is the essence of what the research community can and should provide. In fact, in line with Doug's theory, what difference does it make to our lives and the quality of our lives? I think that is one of the questions I think you'll be throwing out there.

Doug, I loved your focus on basic human values and the point you made concerning how we live together. You really have the broad view. You said, "The narrow approach is a formula for fossilizing yourself. We have the opportunity now to define what our profession is." I thought that was great. No matter how far along we are, the Internet in terms of a real force in our lives is less than 15 years old. We are at a real beginning stage in thinking of it historically. The way things are multiplying is just mind boggling. We're in the middle of both an explosion of diversity and a convergence of media. You mentioned the computer supported collaborative work group—I'd sure like to know what they've learned and what actions they recommend.

Nancy, you talked about individual action being the key to community action. I thought that was excellent. Under your personal responsibility list, you reminded us of Frank Laubach's saying, "Each one teach one." That's great.

No one has reported on the other breakout panel. I was in the other breakout panel and so I will take on the role of reporter very quickly. Diane Velasquez really focused on libraries as technology centers. I wrote down the five points she laid out at the end of her presentation on what do we want to know. Funding agencies, do they really understand? Adequacy of equipment, is it enough? Why are our patrons using computers in public libraries? E-government, what is the impact? And the digital divide? Adrian Kok, who is here at the School of Social Work, was focusing on computer training for older adults. He

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\* **Charles Benton** has served as Chairman of the Benton Foundation since 1981. Its mission is to articulate a public interest vision for the digital age and to demonstrate the value of communications by solving social problems. Among its current program priorities are projects on Universal Broadband/Universal Service, Community Media/Community Development, and Digital Media Access/Inclusion. Charles Benton has also had a long career in the media education and entertainment businesses as President or Chairman of Encyclopaedia Britannica Education Corporation, Films Incorporated, Public Media Inc., Lionheart Television International, and Home Vision Entertainment.

In 1978, President Carter appointed him as Chairman of the National Commission on Libraries and Information Science and as Chairman of the first White House Conference on Library and Information Services, held in November of 1979. In 1997, President Clinton appointed him as a member of the Presidential Advisory Committee on the Public Interest Obligations of Digital Television Broadcasters. Throughout his career, Mr. Benton has been an active board member and advisor for organizations in the arts, education and communications. Currently these include service on the National Foundation for the Preservation of Film in California, The Educational Development Center in Boston, the Field Museum of Natural History in Chicago, and the Consumer Advisory Committee of the FCC in Washington DC. A graduate of Yale University, Mr. Benton did postgraduate work at Northwestern University and the National College of Education and taught 5th grade at the Washington Elementary School in Evanston, Illinois. He is married to Marjorie Craig Benton and they have two children and four grandchildren. (cbenton@benton.org)

gives some rather amazing facts about the increasing aging of our population. He stated the proposition that social workers are natural partners for digital inclusion. In terms of reaching out, information touches us in just about everything we do.

Amy Kerr, from Loyola University's Center for Urban Research & Learning (CURL), offered some very interesting comments. They've done research on centers for neighborhood technology. This project had a \$1 million budget, \$600,000 of which came from The Technology Opportunity Program, which is a big grant. She also passed out this brochure, "Beyond Bridging the Divide: The Case for Integrating Technologies in our Communities." CURL also did the research on the Illinois Community Technology Fund. There were all these projects that were funded as a result of compromises stemming from the suit around the SBC-Ameritech merger, and they did the research on this and the lessons learned.

Next steps. First, Putting two and two together, I got in my last night's mail an RFP, which is due on Sunday, day after tomorrow. I talked with Kate. I talked with CURL and with Michael Maranda, who has done a lot of work with CTCNet, and I think it's possible that in a matter of less than 48 hours, we could have a preliminary research grant proposal here. Now, \$30,000 is not a huge amount of money but not insignificant either. Right now we have a wireless community network that the City of Chicago is rolling out, for which there are two bidders: AT&T and Earthlink. There is a third bidder, a small technology company in California that no one is taking seriously, but essentially this is a struggle between AT&T and Earthlink. My guess is that the city of Chicago will make a decision on this in early fall.

In addition to this wi-fi thing you've got rolling at us, we also have Sprint Nextel's Wi-Max, which they are going to proceed with anyways because they have the capability to do so. So we got the wi-fi and wi-max overlay and the question is how do these complement and compete with what's already there? So it isn't just the technologies and what they can do but it's the ecological environment of these media. If you said this is what's going on: we just had this conference, we're going to continue taking leadership, and we want to take a look at this new technology and how it will relate to what is already there—I think you might get their attention. The SSRC might be interested in that. The question about all these new technologies is what difference will it make? That's what research is here for, to try to dig in for the answer to that question. That's the first next step idea that I'm throwing out.

One other next step. Kate mentioned that the Benton Foundation in collaboration with the Chicago Media Workshop is doing the Community Media Summit on June 15. I think there were announcements about this. Those of you who didn't see these and would like to know more about it or like to be invited, please give me your card before you leave. I really want to involve the research community in this enterprise.

What are we trying to do with this Community Media Summit? To define community media and think about its future potentials. That's a big question and a changing question as the new technologies roll out. What is community media, number one? And, number two, how can we get these powerful tools more centrally useful in meeting basic human and community needs? That's the basic question. That's the 'big picture' issue. I love it. It's ambitious. We're trying to build a model in Chicago: if we are successful that day, it will be building on what the Community Media Workshops has been doing, holding annual meetings for 16, 17 years. What these workshops do is they

bring journalists together with nonprofits so the nonprofits can do storytelling and get to know the journalists; and CMW also publishes a big directory of all the journalists in all of the media networks, broadcast, cable, Internet, print, and so forth. The directory is a very interesting, thick book like this and it is also available in electronic form. Media usually means public relations. In many cases it's not integral part of everything nonprofits do. That's the transition. The workshop was interested in expanding their potential for contributing and they thought this summit idea that I brought to them is a very interesting way in thinking differently about the media and bringing in a different audience. I'm not trying to build an empire here. I'm just trying to figure out how to do some institution building that will be sustainable and help do what foundations are always fussing about. So, that's the Community Media Summit idea.

So what's the next step in this case? Ann Bishop has a really fascinating project going on in the Puerto Rican Cultural Center. We've been looking for a case study in our Creative Expression and Learning session, because the three breakout sessions are the heart of the Summit's content, in addition to the regional context. The three breakout sessions are number one, the interrelationship between community media and community development; number two, the interrelationship between community media and immigrant and refugee populations; and number three, community media and creative expression and learning, not just in schools but through community institutions. I think Ann and I are going to get together on this third session. She's going to talk to the Puerto Rican Cultural Center this weekend. We have to make a decision on this next week. It seems to me they are a wonderful potential case study.

Fran's point that there are 97 languages spoken in Skokie is mind boggling. Chicago is a collection of neighborhoods and I think that's the real power of this city as a world-class city, which the mayor is trying to position for the Olympics in 2016. Maybe we can help him understand the powers of community media which is something that Julia Stasch, who the mayor appointed chairman of his Committee to Bridge the Digital Divide and who is our keynote speaker for the Chicago Community Media Summit - maybe she could get his attention. That's the idea here. Who knows? We're going to try. Nothing ventured, nothing gained, as the old saying goes.

## **Susan Roman\***

This has been a really interesting day for me. I'm looking at my colleague, Jeff Carlson, who is the dean of Rosary College of Arts and Science at Dominican. It's a rare day when Jeff and I get to participate in workshops like this. It's a rare opportunity and I can't underestimate that because it's not often that I get a chance to hear of all the things

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\* **Susan Roman** is Professor and Dean of the Graduate School of Library and Information Science at Dominican University. She brings a wealth of experience in the library field, having served as an adult reference librarian, a children's librarian, a general reference librarian and a member of the senior management team of the American Library Association. She received her master's degree in library science from Dominican and holds a doctoral degree from the University of Chicago. She has been a librarian at the Deerfield Public Library, the Northbrook Public Library, and the American Medical Association, and she has taught in the graduate library schools at The University of Chicago and Dominican University. Since 1986 she has served in a number of capacities with the American Library Association, the latest being director of development. (sroman@dom.edu)

that you've been doing. I also want to acknowledge Prudence Dalrymple, the former dean here at Dominican. I thank you for coming.

Charles Benton here is the gentleman who really laid the foundation for coalitions. Years ago when I was at American Library Association working in children's services, I was at the Benton Foundation in DC because Susan Bales pulled together a coalition for children. The slogan was, "Who's for kids and who's just kidding?" I haven't forgotten it because it pulled together 40 organizations that brought special expertise concerning working with children for healthy development. We all got together at the Benton Foundation and we contributed however we could. The campaign was really designed to ask hard questions of people running for public office. So my hat's off to the Benton Foundation. It proved to me the power of partnerships.

I guess the question for me is why should libraries even be involved in some of these activities around technology? We know libraries build communities. We also know it's the only agency in a community that you can go to and have free access to information. I think we have to make sure we tell that story. Libraries are great equalizers. We talked about the big gap; the rich keep getting richer and the poor get poorer. This is one place in the community where people regardless of economic status have an equal opportunity to get access to the information they need.

I also think libraries are the best-kept secret in town. Every time I go to these coalitions, when I get at a table I hear people talk about all the faith-based organizations like churches. I hear school districts. They mention every community organization but the one we call the "L word"; libraries. We have to be out there and talk about why libraries can make a difference in people's lives. In another session today Nancy John asked, "So what difference does it make to the individual?" We can request money for more technology. We can ask for more staff, but I don't think funders care about that. They want to know how technology's going to change the users and the impact it will have on the end users. We have to keep that in mind.

U.S. libraries are free, and yet we take them for granted. Those of you who travel around the world know it's unique. Many of our immigrant populations don't realize libraries are free. In many countries fees are charged, even if it's a small amount. I think we have to get the word out and say we are unique and we are free. Somebody mentioned that libraries are used when there's a need. It's really up to us to catch people when they are young and encourage them to come back at every age when they need information. Otherwise they are not going to feel comfortable coming into libraries.

The figure that I've been reading is that the young people today will change careers up to seven times in their work life. It's really important to have a place for them to go back and retool; libraries are crucial to the process of life-long learning. Librarians talk about the love of learning and the love of reading. It's up to us to get out there and get people in early.

Adrian Kok talked about the Blackberry keys being so tiny in one of the breakout sessions. It's an issue. I can give you a concrete example. I worked in a small public library. We had built a beautiful new building with a fireplace in the front. They had very comfortable chairs surrounded by all the new fiction and all the new nonfiction, with the newspapers right there, but no one was sitting there. We thought, "Oh my gosh, we spent all this money to make this like a living room, to make it comfortable, to make it welcoming," and what we found out was just so simple. We asked somebody, "Why are

you sitting over there and not here?” It was the low lighting. We didn’t have enough light. We made it like a living room but people couldn’t read in that area. It was as simple as that. I think social work will really help us a lot in learning what we can do to enhance the library experience.

Somebody else mentioned the matter of how we find out what information people need. The Memphis Shelby County Library System has done a statewide program. I’m really impressed. They have billboards everywhere in the state. They say, “Where do you turn?” They received federal funding to develop a statewide campaign to reduce the rate of teenage pregnancy, which was the highest in the nation. Where do teens turn? They drop out of school. They don’t have housing. Many were single parents. They put billboards all around and built a centralized information center in the main library. Someone mentioned earlier that libraries are known for information and referral, what used to be called “TIP” agencies. It’s true we shouldn’t be doing social work but we need to be a source of good information and to use the technology.

Nancy John mentioned that individual action is the key to community action. I would say that library services are built on the needs of the individual. We can’t forget that. I don’t think we have but I just want to reiterate it. How do we approach the policymakers and how do we tell the story? We have to keep in mind our target audience. Yes, we can have a lot of research. It can be bound. It could be shelved. But if we’re trying to get the attention of many of our policy makers, the funders, we have to be able to tell the story. So much comes across their desks and if we can’t say it and make it look nice, such as bullet pointing the things we need, our story won’t be heard. We should keep that in mind when we’re seeking funding. As I said earlier, funders care about changing lives, changing behavior.

In many of the projects that I worked on, it really was peer-to-peer marketing that got the message across. When a friend or a neighbor says, “You should go to the library. You should get online at the community center,” that’s going to be more powerful than any kind of marketing we can do because there’s a lot of trust involved with peer-to-peer mentoring.

We have much to learn from other disciplines and how that affects library school education. I’m so pleased to have other people from other fields here. Could we ever agree on changes to core competencies? Those are things we have to talk about when we’re educating some of our students who will be entering the workforce soon.

Technology does build coalitions, just as libraries build communities. What I found out in doing research was that people talk about reading books and say that, “Books are my best friends. When I’m alone I can read a book .” However when you read a book that you really enjoy, don’t you want to share it? Don’t you want to tell other people about it? Did you read this book? Did you know about it? Reading is a socializing experience. I would say technology can be socializing, too. I’ve been to libraries where I see one young person sitting in front of a computer and there’s a whole group of people standing around him watching him. They are engaged. It’s really a socializing experience. I worked at a rather affluent library in the northern suburbs here in the Chicago area and a recently retired gentleman came in, someone who could easily buy his own computer. I asked him, “Why do you come in every day and check your

e-mail here? Why don't you have a computer at home?" He said, "Because it gets me out and into the community. To be stuck in a room all by yourself is isolating." It was an eye-opener for me to hear from that gentleman.

I also think computers can be a wonderful link for any intergenerational kind of programs. Just think of the talent and the experience that could be shared by our older citizens especially with our young people who feel disenfranchised for whatever reason. I once saw a wonderful project where kids could go to the library or to their school and they could e-mail people who were in retirement centers. They just asked all kinds of wonderful questions, while rebuilding the confidence and self-esteem of some of our seniors. Of course, it also helped the young people.

In that vein, another wonderful program I would like to mention was one that we held on storytelling in the Oak Park and River Forest libraries and museums and here at Dominican. Telling one's own story has such richness. Having people tell their wonderful background enriches your whole community. It really takes away that feeling of loneliness and isolation. Again, I look at my social worker friends and say that's another place we can work together. These are just a few things that I thought about throughout the day after attending the program. Thank you all for coming today and sharing your views.

## Part 2: Reflections by key participants

### Prudence Dalrymple \*

Many of the eChicago symposium's participants spoke to an agenda for social change. It would be difficult to leave the day without feeling energized toward community engagement, using technology for social good. My comments here arise from my work in health informatics, both as a use of information technology, and as a researcher at the intersection of health informatics and library and information science.

Technology is a moving target, full of rapid, evolutionary change. Though keeping up with technology takes time from everyone's day, it promises ever increasing rewards of access and efficiency. In such an environment, it is tempting to value change for change's sake, but the eChicago symposium challenges us to ask some important questions:

What am I giving up to keep pace with technology?

What am I NOT doing in order to make sure I stay current with technology?

What are the social costs of increased investment in technological innovations, if it is not coupled with equivalent investment in infrastructure, education, economic viability and reform?

At the outset of the symposium, Doug Schuler challenged all attendees to engage in broad-based positive social change and presented a multi-pronged agenda for change that can guide and motivate future work.

Kathryn Clodfelter's presentation introduced a critical perspective drawn from her personal experience informed by the tenets of social informatics. More technology is NOT always better. Her reference to unintended consequences raises a phenomenon that has gripped the health informatics field. Health care has been a late comer to information technology, despite its investment in clinical medical technological innovation. Economic, security and political obstacles to health care IT innovation are formidable, but so too is the complexity of health and disease. Business, education and libraries have already grappled with issues that the health care industry is just now beginning to

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\* **Prudence Dalrymple** is a professor at the College of Information Science & Technology at Drexel University in Philadelphia. She recently spent two years at the Johns Hopkins School of Medicine where she was an NLM fellow in health sciences informatics. She received her Ph.D. in Library and Information Studies from the University of Wisconsin-Madison, where her research focused on a cognitive model of electronic database searching. She has been on the faculty of the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign, and was dean of the Graduate School of Library and Information Science at Dominican University from 1997-2005. She also directed the Office for Accreditation at the American Library Association from 1992-1997 and has practiced as a health sciences librarian in both clinical and academic settings. Her informatics activities include appointment to the Biomedical Library Review Committee, (now the Biomedical Library and Informatics Committee) a study section at the National Library of Medicine from 1998-2002, and to advisory boards of several grant projects. In addition to her professional activities, she has served on several editorial boards. Her research focus is the dissemination of research evidence for improving clinical practice. She is the author of numerous papers, most recently addressing the relationship between library and information science and health sciences informatics. (prudence.dalrymple@ischool.drexel.edu)

understand. In some ways, health informatics is where library automation was 30-50 years ago—setting standards for data-sharing, re-training a workforce, integrating legacy and special purpose systems, learning from system failures.

Social informatics, the study of the impact of technology on organizations and on individuals, is gaining considerable traction in the health sector. As healthcare makes the transition to a digital environment, as it inevitably must, it is essential to understand the social, organizational and political consequences of technological change. As Diane Velasquez pointed out, completing an application for FEMA funds after Hurricane Katrina required access to a computer, and a power source—scarce commodities in the early days! On the other hand, another lesson from Katrina revealed that the VA system's electronic health record, because it was de-centralized and backed up securely on remote networks—demonstrated that well-designed infrastructure enhances access and delivers measurable benefits.

In my recent work in health informatics, I have been excited by the potential for synergy between public health and LIS, and between social work and LIS. As evidenced by Adrian Kok's work at the intersection of social work and LIS, the goals of social justice, equity, and engagement for the public good have been shared for over a century shared librarians and social workers. It is particularly appropriate to note the historical roots of both professions in Chicago; could this be a renewed mandate for the 21st century?

More and more, public health researchers are acknowledging that community advocacy boards are key to successful public health campaigns in local communities. No longer can researchers put a community under a microscope for academic research. Ironically, public health campaigns designed for international health workers are being brought back to this country to influence community work here—recognizing that every community has a stake in its own future—its health, its economy, and its information infrastructure.

Findings from the Pew Internet in Public Life Project continue to point out the growing importance of health information on the Internet. There is more and more encouragement and opportunity for patients to use electronic information to take charge of their health. Those who are committed to social justice along with technological advance must ensure against a “bait and switch” in which information channels shift the risk along with responsibility to individuals who may or may not be capable of understanding and assuming that risk and responsibility. The growth in electronic personal health records is only one—albeit a huge one—where the technology community and the professional communities will need to advocate for social inclusion, education, and access.

It's been nearly six months since we all met in River Forest on a glorious spring day. In the interim, political lines are being drawn, and contenders in next year's elections are debating many of these issues. Providing both voice and will for political change—in information policy, health policy, or economic policy—have been enhanced by the dialogue that was initiated at Dominican University in 2007. I join with all participants in looking forward to important future developments.

## Michael Maranda\* : “We Chicago”

Digital Excellence became a local topic in 2007 as Chicago actively pursued citywide WiFi. The public interest component of the debate followed the national trend with the limiting rhetoric of digital inclusion, and the grassroots struggled against yet another top-down communications technology and social policy. This is representative of the greater challenges of our day: we need a renewed capacity for self-governance.

The city has since pulled back from this initiative. Subsequent neglect of the more promising developments may have disappointed: official recognition of the digital divide (and the call for a digital inclusion strategy); the requirement of total coverage of Chicago's 212 square miles; and the significant headway gained by the campaign for digital excellence in presenting a positive vision.

In the campaign for digital excellence we recognized that the deeper questions of excellence held the potential to spill over from the social benefits/digital inclusion dialogue to more widely inform the public use of technology. Indeed we held them to be the logical starting point of a three-part process hierarchy applicable to any public technology question: 1) the public must always begin with a process that works towards clarity of purpose and commitment to that purpose; 2) technical approaches are determined by the purposes identified; 3) ownership/investment/sustainability model follows from the declared purposes and technical solutions, with an appreciation of the long-term value of the enterprise to the public interest.

Unfortunately, Chicago bought into the selling of networks where ownership and business model were presupposed and the technology was taken for granted. Purposes and benefits served as justifications geared to mobilize support from various and disparate constituents. Consequently there was never any serious debate on two major decision axes, and the third served a perverted function. This is not only top-down, it's backwards. The interests of the purveyors of networks should never drive such processes, public vision, convenience and necessity should.

Gatherings such as eChicago and the networks they foster and support are foundational to a model of governance where all take a share in leadership and visioning. We have the potential (and the basic technology) to establish mechanisms and channels for feedback that allow people to more effectively share and learn from their experience and thereby engage in deliberative process. This is a much wider question than the

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\* **Michael Maranda** advocates and organizes around media policy issues and the public use of technology. He fights for digital literacy, access & equity as executive director of CTCNet Chicago, founding chair of the Illinois Community Technology Coalition, and co-founder of the Chicago Digital Access Alliance. As president of the Association For Community Networking (AFCN), Michael promotes local and regional networking—the foundation of the global community information and communications technology (ICT) movement.

Michael bridges community media and technology sectors locally through Let's Talk Media networking events. He established Get Illinois Online [GIO] as the center of statewide dialogue and as a rallying cry for broadband deployment proponents of all stripes. Among community technologists, he actively applies the principle of Movement as Network, opening space for cross-sector dialogue and partnership. An avid proponent of community-owned and driven solutions, Michael is dedicated to promoting cooperative solutions and creative support structures in the non-profit/voluntary sector. Michael is a co-founder of NPOTechs, a Chicago volunteer network bringing open source and free technologies to non-profits. A New York native, Michael resides with wife and daughter in the Hyde Park neighborhood of Chicago. Michael blogs at <http://wrythings.net>. ([mmaranda@afcn.org](mailto:mmaranda@afcn.org))

deployment of network infrastructure, but it situates that question in the appropriate context.

If we are serious about this work we will have to ask difficult questions polite society might have us avoid. We'll have to be equally reflective on our own practice, and active in our efforts to widen the circle. In the interest of social justice and species survival, we must discover the social forms and technologies appropriate to our needs and higher purposes, and build or blend accordingly. This is civic intelligence. This is the work community informatics must take on directly. Excellence is not a model you neatly package, it is hard won by process and method.

As we look ahead, I ask myself: what portion of our social and economic practice remains beneath our dignity? How and where do we regularly, systematically squander human potential or otherwise propagate injustice?

### **Don Samuelson\***

To me, community informatics is a somewhat ambiguous field. It consists of academic librarians who have experiences with computers, databases and the Internet along with their traditional knowledge classification, storage and retrieval capacities. Who they are and what they are doing is clear. The boundaries and purposes of the inquiry are not.

Several observations. The eChicago conference struck me as an effort to update and integrate the various public technology initiatives of the past 15 years: community technology centers, community networks and community media. Doug Schuler's opening keynote was a retrospective on the phenomenon which he called "Civic Intelligence." Charles Benton convened a summit this summer in Chicago on community media which traced the evolution of this branch from the early 90s to the present day. Both of these events were timely – in Chicago – given Chicago's efforts in 2006 and 2007 to create a city-wide wifi system as part of a larger effort to integrate the Internet and broadband into the fabric of the City, perhaps as a preview to what Chicago might look like as an Internet-enabled City for the 2016 Olympics.

The program at Dominican on April 20, 2007 was straightforward. There were presentations on community communication networks (Skokie, Bronzeville and Pilsen). There was a discussion of the history of community networks in Indiana. Karen Mossberger and Salvador Rivas discussed the use of computers and the Internet in low income black and Hispanic neighborhoods. Diane Velasquez discussed public technology initiatives in Midwestern libraries. Paul Adams reviewed the Prairienet access and training programs in East. St. Louis and Saõ Tomé, Africa. The meeting concluded with a panel discussion on next steps. Charles Benton talked about the potentials of the Chicago wifi project, his own Community Media Summit and the broader thinking going on in Chicago that ultimately resulted in "The city that networks: transforming society and

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\* **Don Samuelson.** Born in Chicago. Local schools. Poor. Scholarship student at Dartmouth. Peace Corps in Nigeria. Fuller Brush salesman. U of Chicago Law School. Kirkland & Ellis law firm. U of Chicago Law School again—missed Hyde Park, wife didn't—as Assistant Dean. Assistant Director of the Illinois Housing Development Authority. The 30 years in affordable housing development, redevelopment and management. Morphed into resident services, onsite computer learning centers, and now Internet-Enabled Cities and Neighborhoods. Along the way, I read, wrote, talked and learned. (dssa310@aol.com)

economy through digital excellence,” the May 2007 report from the Mayor’s Advisory Council on Closing the Digital Divide led by Julia Stasch of the MacArthur Foundation.

Paralleling these discussions has been the work of the governor’s Broadband Deployment Council and the missionary work of Lieutenant Governor Pat Quinn to promote an appreciation for broadband initiatives around the state. So what is to be done?

Librarians have traditionally been responsible for facilitating self and lifelong learning by individuals by guiding them to relevant and organized resources. They have been oriented to content. That appears to be where we are at the moment with respect to the practical benefits of broadband and the Internet.

Community informatics seems to me to have two significant purposes with respect to promoting the practical benefits of the Internet and broadband. The first is to collect and organize examples of how the Internet has actually solved real problems or improved conditions. Connect Kentucky has organized its county broadband initiatives around nine functional areas – K-12, healthcare, higher education, libraries, business, government, nonprofits, agriculture and parks/tourism and recreation. This is not the definitive organization of the possible areas of broadband/Internet benefit. But it represents a start. The entire world needs access to our collective experience in how the Internet and broadband can expand vistas, impart knowledge and educate people in how they can improve their lives and their communities. At the moment, there is no organized and systematic effort to collect this information. We are left with learning that the United States is 16th in the world “in broadband,” assuming that is a bad thing, without any refined analysis of its real meaning or importance.

I had hoped that more time would have been spent at the Dominican forum discussing ways to organize and disseminate information in practical ways on the results of the 10 years of the TOP program. The 600 projects and \$230M in grant money (leveraged by the matches of the applicants) represents an organized way to collect the results of demonstration projects to illustrate the benefits of the creative use of telecommunications in education, workforce development, pre-school and supplemental education, healthcare, economic development, public safety, etc. There were more than 6,000 40 page applications for TOP funding, which resulted in 600 funded projects. The proposals had websites, collaborations, staff, evaluations, dissemination strategies. It is a treasure trove of relevant information on how the Internet and broadband could be used to increase the efficiency and effectiveness of traditional economic development and quality of life programs. In my view, the collection, organization, review and dissemination of these materials ought to be the centerpiece of the community informatics movement in the United States. The effective organization of this database would be a great contribution to the interests and needs of the United States and the world.

The second major area of concentration should be to develop materials on effective Internet based community portals, to provide the electronic commons, water cooler or town square where civic intelligence can be gathered and shared. For reasons related to newspaper economics, community newspapers have died out across the country. Today, the Internet and electronic publishing could enable e-newsletters or digests to be created and distributed to provide the superior, interactive version of the traditional hard copy newspaper. The Knight Foundation has taken the lead in this area in their funding of communication systems in their 26 cities, in financing the development of Journalism 2.0 and in supporting the efforts of the ChiTownDailyNews to provide

training in “citizen journalism” to the communities of Chicago. Where are the best examples of these electronic newsletters with citizen journalists producing stories via content management functionalities? Are there models to benchmark against? What does Mike Maidenberg of the Knight Foundation think ought to be done – to create the new vehicles for community media to support the functions of community networks and “civic intelligence? To me, these should be the twin pillars of community informatics. The forum was a good first step. Now we need strategic next steps and follow through.

## Part 3: Reprints of work by or from Chicago Digital Access Alliance speakers and key participants

### CHICAGO DIGITAL ACCESS ALLIANCE (CDAА) Digital Excellence—Trust in Chicago's Future

*The Community Benefits Agreement and the Establishment of a Digital Excellence Trust*  
March 7, 2007

#### **We, Chicago, are at a crossroads.**

We have decided to deploy a citywide wireless network in our aspirations as a world class global city. We are preparing to transform ourselves for leadership in the new Millennium.

Make no mistake about this wireless initiative: *this is about jobs*. Economic development is integrally tied to the quality of life and the character of the city we want.

In 2006, we took a giant leap forward through public hearings convened by the *Mayor's Advisory Council on Closing the Digital Divide* and in the language of the Wireless Request For Proposal. Not only does that text formally recognize the significance of the *Divide* to the civic and economic life of all Chicagoans, it also requires Wireless Vendors to propose a Digital Inclusion Plan, to be implemented and funded by their operations as a contractual obligation to the City.

We've almost got it right. But it is time to speak from the values and expertise of our communities. Let's start with a bold vision and not with an afterthought.

#### **We settle for no small plans.**

*Digital Excellence is the strategy and end we must keep clearly in focus. Chicago will set a new standard. Digital Inclusion is not enough. It sets the bar too low for our dreams.*

*No Vendor can lead Chicago to Digital Excellence. Nor can they draft a plan without direct public involvement. Neither Digital Excellence nor Inclusion are within their core competence.*

*Achieving Digital Excellence requires ongoing community participation, recognized expertise in the field of digital literacy and an integrated strategy grounded in the needs and aspirations of the people. Digital Excellence will not be attained as a digital afterthought of the Vendors to the Wireless network.*

#### **We want a Community Benefits Agreement for Digital Excellence.**

We, the people of Chicago, propose the Wireless Community Benefits Agreement as an integrated strategy for Digital Excellence, firmly grounded in the ambitions of the city-wide wireless initiative.

Only with the Community Benefits Agreement shall the Network be an ***Engine for Economic Development for all Chicago neighborhoods***. This engine depends upon the ***values and character designed into the network*** at the outset. We safeguard our future through ***direct investment in a community governed Trust*** rather than reliance on the strategic maneuvers of any one Vendor.

#### **Digital Excellence and the Community Governed Trust require long-term investment.**

Investment in a Digital Excellence Trust and in local models of the next generation of community technology, media and development centers coordinates actions so that people everywhere will be:

*Confidently using collaborative tools*

*Cultivating their voice by expression in media of their choice*

*Creating and extending tools to their own purpose*

**Chicagoans working to make the Chicago we want.**

CHICAGO DIGITAL ACCESS ALLIANCE: [www.digitalaccessalliance.org](http://www.digitalaccessalliance.org)

312-212-3623

## PRINCIPLES OF THE CHICAGO DIGITAL ACCESS ALLIANCE

*The following principles have been adopted under the Campaign for a Community Benefits Agreement. We believe these principles should guide the development of the wireless network and the opportunities that emerge from its formation.*

- 1. DIGITAL EXCELLENCE IS AN INSTITUTIONALLY FUNDED PRIORITY FOR CHICAGO.** Activities promoting Digital Excellence are best shaped and supported through a sustained funding mechanism. A Digital Excellence Trust, guided by local constituents and practitioners in the field of Digital Literacy should advocate on behalf of the digitally under-served, offer programmatic support to establish local capacity and promote the vision of digital excellence.
- 2. SOUND PLANNING, EVALUATION AND POLICY MEASURES ARE CRITICAL TO DIGITAL DIVIDE EVALUATION AND DIGITAL EXCELLENCE IMPACT.** Qualitative and quantitative processes must be established to gather baseline and ongoing data on Chicago's digital divide, and guide the creation of new policies and practices to strengthen digital opportunities, thereby promoting digital excellence.
- 3. UNIVERSAL ACCESS TO HIGH-SPEED CONNECTIVITY IS A PUBLIC RIGHT AND NECESSITY.** Universal broadband access for all citizens is a public right, not a privilege. Internet access must be available to ALL Chicago residents regardless of where they live, work or learn, furthermore, provision must be made for special access needs. Service upgrades and enhancements must be made available to all communities in an equitable manner.
- 4. DIGITAL LITERACY AND FLUENCY ARE FORMS OF HUMAN CAPITAL AND REQUIRE PUBLIC INVESTMENT.** Comprehensive training for digital literacy must be available in multilingual and varied learning formats. Digital proficiency must be promoted at neighborhood based locations, especially community technology centers, community based organizations and libraries, to strengthen resident understanding of new technologies. Training must be available in multiple formats to promote the inclusion of citizens who are fluent in other languages or disabled.
- 5. LOCAL INFRASTRUCTURE IS NECESSARY FOR COMMUNITY-DRIVEN CONTENT DEVELOPMENT.** Content must reflect the ideas, identities and innovation of community residents and their respective neighborhoods. Local infrastructure must be established to allow for community control over content. Civic, educational and government web sites must be available for free to residents at ALL times through a *Civic Garden* accessible on the wireless splash page.
- 6. HARDWARE TOOLS MUST BE AVAILABLE TO ALL.** Computer hardware, whether new or refurbished, must be available to ALL Chicago residents free or at affordable cost, and non-predatory mechanisms must be put in place for the acquisition of this hardware for all consumers. Community based organizations, libraries and parks must be equipped and supported to provide free public use access.
- 7. ENVIRONMENTALLY SUSTAINABLE BEST PRACTICES AND INNOVATIONS IMPROVE THE HEALTH AND WELL-BEING OF ALL NEIGHBORHOODS.** The tools of the information age must adhere to and support the highest levels of environmental and economic sustainability. The city should use the new network as a means to disseminate and capture information vital to improving the sustainability of our city, such as gathering air and water quality data and improving transportation choice. Economically and environmentally sustainable processes for disposal and recycling of outdated electronic materials should be supported by the City and technology vendors in all communities, particularly those low-income areas traditionally targeted for the potentially harmful disposal of used and toxic computer hardware. The City and technology vendors should support the creation of neighborhood-based recycling and refurbishing initiatives for environmental remediation and job creation.
- 8. OUR FREEDOM TO CONNECT DEMANDS NETWORK NEUTRALITY AND ACTIVE MONITORING FOR EQUITABLE SERVICE.** Network Neutrality is grounded in Freedom of Speech. For all networks offering service in Chicago the precept of network neutrality must be honored and all features of the network (bandwidth, services and enhancements) must be deployed so as to achieve universal and equitable coverage. The community must have the ability to monitor and verify data on coverage and quality of service, there must be mechanisms for remediation, and the city must take an active role to ensure compliance by vendor and subsidiaries.
- 9. THE GLOBAL ECONOMY WORKS FOR EVERYONE: ASSURE WORKFORCE DEVELOPMENT AND FIRST SOURCE HIRING.** Workforce development opportunities that emerge from the wireless network should be made available to neighborhood residents (including the hard-to-employ, youth, and physically challenged) that are identified, trained and employed through first source hiring opportunities and subcontracting opportunities for neighborhood-based businesses.
- 10. IN STRONG NEIGHBORHOOD ECONOMIES, ENTREPRENEURS AND SMALL BUSINESSES THRIVE.** The network must provide mechanisms to expand existing small businesses and cultivate new opportunities in Chicago's under-served communities. Small businesses and residents must have the resources, training and support to use the access afforded by the network to grow revenue and potential, including training in business development and *eCommerce*.

## **Chicago Digital Access Alliance—Community Benefits Agreement Proposed Terms for Citywide Wireless Vendor**

*To ensure that the wireless network promote and support an environment rooted in digital excellence, the vendor must meet or exceed the following requirements:*

### ***A Digital Excellence Trust shall be funded by the Network Utility***

1. The Vendor shall make the following provisions for the seeding and ongoing funding of the Digital Excellence Trust, a nongovernmental entity charged with coordinating and supporting all programmatic, evaluation and advocacy work deemed necessary for promoting Digital Excellence for all Chicago:

a. The Vendor shall provide a \$7,000,000 cash contribution seeding the development of the Digital Excellence Trust, upon signing of the Contract.

b. The Vendor shall provide 10% annually of ongoing pre-tax net income to the Digital Excellence Trust starting one year after signing of the contract and continuing through the life of the contract/network.

c. The Vendor shall direct 100% of portal page and *Civic Garden* advertising revenue to the Digital Excellence Trust.

2. The Vendor commits to sponsor an annual Digital Excellence fund-raising event and to a specified level of employee and sub-contractor volunteering in support of these community benefits and the Digital Excellence Trust.

### ***A Civic Garden establishes the values and character of the Network***

3. The Vendor shall provide unlimited free access to a "Civic Garden" where all .GOV, .EDU and .ORG sites are available to anyone receiving the wireless signal, at bandwidth equivalent to other content provided over the network.

4. The Vendor shall establish mechanisms to provide local infrastructure and tools to nurture community content (e.g., neighborhood portals, splash pages). Such content shall be available under the provision of the Civic Garden, and the tools shall support ADA compliance.

5. The Vendor shall ensure network neutrality defined as not limiting bandwidth, limiting content or otherwise implementing any limitation on use or access to bandwidth in order to create or provide any competitive advantage to the vendor or any wholesaler, application or network lawfully accessing or utilizing the Network with the exception of any harmful or malicious traffic, except for the purpose of maximizing the speed and efficiency of the Network and for the purpose of providing the highest standard of services to the largest number of customers on the Network.

6. The agreement between the City and the Vendor will prohibit Red-lining of network services to any area or location in the City by any means.

7. The Vendor shall supply data on the network to the Digital Excellence Trust, as well as notice of plans for network enhancement and means for independent monitoring and verification of equitable quality of service.

8. The Vendor shall participate annually in a public forum on the quality of network service and the terms of the Community Benefits Agreement hosted by the Digital Excellence Trust.

***The Network shall be an Engine for Economic Development***

9. The City and the winning vendor shall develop and enact a first source hiring agreement and require subcontractors on the wi-fi infrastructure build-out to support a such an agreement. Under the first source hiring agreement, Chicago residents and unemployed residents of low-income census tracts are considered first for temporary and permanent jobs related to the wireless network build-out to spur economic development in Chicago communities.

10. The Vendor shall commit to phasing in at least 25% of under-served community areas, defined as those with census tracts at or below the poverty level, during their initial build out phase.

11. The Vendor shall provide discounted services to small businesses in under-served communities that require technology access to spur revenue growth.

12. The Vendor shall provide free and discounted service to qualified human services agencies serving populations that fall within the range of 60% of the poverty limit and community technology centers that offer access, training and support to the network.

13. The Vendor shall create community NPO network resellers who will assist in promoting local usage and capture rates.

14. The Vendor shall engage in a multilingual marketing campaign and work with community based organizations to promote the network and its social and community benefits to a broader audience, including outreach to populations with special needs under the ADA. These campaigns shall promote free and discounted hardware and software, online resources supporting training and educational pursuits, and shall ensure that all such offerings are ADA compliant.

15. The Vendor shall provide multiple outlets (e.g., stored value cards, debit/credit cards, cash) that are non-predatory for consumers to access paid services available on or through the network.



Chicago Digital Access Alliance  
Community Benefits Agreement Campaign

The City of Chicago has issued a request for proposals for the development of a wireless network that will provide wireless Internet access across the City. In order to ensure that the benefits of this service are fully maximized in every community I pledge my support for a Community Benefits Agreement that requires the winning bidder to deliver resources that support neighborhood-based content and skills development for digital literacy and fluency in every community throughout the City of Chicago.

Name \_\_\_\_\_

Affiliation \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_

Cell Phone Number \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Website Address \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Ward

Please sign and return pledge form to **???????**

## Afya: Social and Digital Technologies that Reach Across the Digital Divide

by Ann Peterson Bishop, Imani Bazzell,  
Bharat Mehra and Cynthia Smith

*This paper presents initiatives taken in the Afya project towards bridging the digital divide through social and digital literacy, equitable access, training, and content initiatives at the community level. As a participatory action research project, Afya (Swahili for "health") is designed to engage African American women in assessing and increasing their access to quality health information and services. Based on principles of social justice, the project is geared towards redefining relationships and achieving constructive social change at a community-wide level.*

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### The Mission of the Afya Project

Afya (Swahili for "health") is a participatory action research project designed to engage African American women in assessing and increasing their access to quality health information and services. At the same time, it nurtures their interest, proficiency, access, and participation related to information technology and the Internet. Through the Afya project, we are striving to develop a practical vision for library engagement in community health and the digital divide that promotes social justice through community-wide alliances that model more democratic and participative relationships. Thus, Afya is concerned, fundamentally, with developing new social technologies (ways that people communicate and collaborate) as well as new digital tools and resources.

At the core of the Afya project is SisterNet, whose members are committed to achieving the lifestyle, behavior, and support systems that will lead to better health. SisterNet is a local network of African American women, founded by Imani Bazzell, whose members came together to fill a void. Many women in the Black community were hungry for information and support in their quest to understand their dissatisfaction with life, yet didn't necessarily have the language or mechanism to articulate and pursue alternatives. SisterNet started by organizing a health conference, called "Get With the Program," designed to explore the meanings of physical, emotional, spiritual, and intellectual health from a Black

woman's perspective. The conference helped to introduce these concepts as vehicles with which Black women could transform their lives, and in the process, the life of our community. SisterNet women adopted the motto "Health, healing, leadership - For the lives we've always wanted." On the road to wellness, SisterNet women have developed numerous projects and opportunities designed to nurture healthy lifestyles and community activism.

SisterNet sees its efforts as an essential part of a political strategy to resist oppression and shape livable communities. Fannie Lou Hamer was quoted as saying, "We're sick and tired of being sick and tired!" One of the things SisterNet women were tired of was people making decisions about their lives without them even being "at the table." One of the ways to change that reality is to create your own "table."

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## Collaborating for Change

The Afya project is one such effort to set out that table, the result of a partnership with the [Graduate School of Library and Information Science](#) at the University of Illinois at Urbana-Champaign, and a generous National Leadership Grant from the [Institute for Museum and Library Services](#). In many ways this project is about relationships. In fact, it has its roots in the relationship that grew out of its Principal Investigator and Community Consultant's association, which began when they attended childbirth class together. Ann Bishop's interest in and commitment to community involvement and closing the digital divide led her to invite Imani Bazzell to collaborate on developing this project, which would marry health activism to technology activism.

Other organizations have joined us in collaborating for change in our local community, forming an alliance in which each contributes needed expertise and resources. SisterNet women, ranging from age 18-80 and crossing economic classes, are involved throughout as "community action researchers." In this role, they were responsible for pinpointing key problems in community healthcare services in our discussion groups, evaluating existing digital services, and framing project goals and activities to address the problems they identified. Thus, SisterNet women have led the effort to arrive at a Community Action Plan for the Afya project, which they are currently helping to implement. One particular way that SisterNet women's local knowledge and expertise have been kept front and center as we develop new digital health resources and plan community-wide activities is through our continual, though fluid, use of scenarios (Carroll, 1995). Our scenarios are simple, unstructured anecdotes, narratives that bring together values and practices related to the use of health services and information. They provide authentic insights into local women's experiences related to both healthcare and computers and we are finding that they serve multiple purposes in the development of both social and digital technologies (Bishop, Mehra, Bazzell, & Smith, in press; Bishop, Mehra, Bazzell, & Smith, 2000).

Faculty and students at the University of Illinois - including Bharat Mehra and Cindy Smith (herself a SisterNet member) as research assistants - help develop the techniques and resources that support the work of community organizations in the Afya project.

The Afya project also involves a substantial role for [Prairienet](#), our local community network that is housed at the University, in the provision of computer technology and training. Like most community networks, Prairienet ([www.prairienet.org](http://www.prairienet.org)) is a not-for-profit organization whose mission is to contribute to community development by offering local digital content, Internet access, public access computers, and user training and support. Prairienet has provided us with computer training and Web development services, as well as free memberships and computers for SisterNet who have completed computer training.

Parkland College is a longtime supporter of SisterNet through its Department of [Adult and Continuing](#)

Education. They have given generous in-kind support as well as access to computer hardware, software and other resources for the SisterNet Resource Centers we are developing as part of our Community Action Plan.

Public libraries, healthcare providers, the public health district, and other health information and service providers can exclude or miss the mark in their efforts to include or consider the needs and interests of Black women. This project seeks to bridge some of these communication gaps and lapses through the active involvement of healthcare and library organizations. These local groups have been vocal in their desire to unite in efforts to build capacity for creating and sharing health information across the social, cultural, economic, and technology divides that separate Black women from service providers. Local service providers participated in our needs assessment focus groups and are also helping to implement our Community Action Plan.

We've chosen to use SisterNet's action circle model as the primary social technology for implementing the Afya Community Action Plan. SisterNet action circles are ad hoc in nature. They are formed when three or more women identify a problem and are willing to research and develop a plan to resolve it. Action circles build knowledge and experience as skills and information are shared and developed. They are also designed to further the interests of Black women by foregrounding their concerns and insights and prioritizing their needs and relationships.

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## Democracy is Messy

We see SisterNet, and the Afya project in particular, as part of the larger national and global movement to make real the promise of democracy. Including traditionally excluded and disparate voices, and resisting elitism and hierarchies can not only be exhausting, but messy. Our approach to this work has three criteria to meet. It must be:

- **Community-wide**, including SisterNet women, university affiliates, and local health information and service providers;
- Committed to **redefining relationships**, especially as they relate to the balance of power between Black women and community-based institutions; and
- **Action/change oriented**. This involves inquiry, not for inquiry's sake but toward some end such as resolving a problem, creating a new opportunity, or expanding a relationship.

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## Afya Community Action Plan

We have encapsulated basic project goals for Afya's second year as:

1. increase computer access and literacy among Black women;
2. improve the quantity and quality of health information from local providers;
3. establish and institutionalize ongoing information provision from Black women, in both digital and print formats;
4. improve relationships between providers and Black women; and

5. facilitate the further development of a strong social network - for the exchange of support and information related to both health and computing - among SisterNet women.

Our Community Action Plan (see Figure 1) lays out specific actions to meet our goals. It is the result of a wide range of input and reflects the priorities of a unique cross-section of local Black women.

### **Figure 1: Afya Community Action Plan**

- Establish Action Circle to develop a Web site featuring jargon-free culturally appropriate health information for our physical, emotional, spiritual, and intellectual well-being; chat and bulletin board space; news; tips; and public policy information;
- Establish Action Circle to develop a SisterNet Technology/Internet Guide;
- Identify and assist other local Black women's organizations interested in developing their own Web sites;
- Develop and offer series of free computer training workshops targeting beginner, intermediate, and advanced needs;
- Identify and train resource and referral agents (on- and off-line) to promote healthy lifestyles and use of technology;
- Establish Action Circle to develop five SisterNet Resource Centers featuring relevant books, magazines, pamphlets, and Internet access in comfortable and convenient locations for Black women;
- Establish Action Circle to develop and design visually appealing, easy to read health promotional materials on various topics and make them available at numerous drop-off sites;
- Establish Action Circle to design a health and technology "Bill of Rights" poster for public distribution and display;
- Establish Action Circle to identify leadership opportunities for women as SisterNet representatives on relevant committees, task forces, and so forth related to health and technology information and access (such as those set up by libraries, public health district, social service agencies, community organizations, private providers);
- Establish Action Circle to organize Black women's

health fair designed to increase knowledge about health concerns and resources and provide opportunity for interaction between health information and service providers and community women.

Sign up sheets for the activities in our action plan were presented at SisterNet's annual community health conference. Our Community Action Plan encompasses the development of both digital and social technologies; and in fact the two are intertwined. For example, we hope that social activities such as developing a cadre of local Black women who are interested in collaborating with local health service providers to create more relevant and appealing materials will lead to the creation of digital content for SisterNet's Web site. Moving from the digital to the social realm, community members hope that constructive communication through SisterNet web site's chat rooms and listservs will help build trust and understanding, a spirit of collaboration, that will be reflected in social interactions that take place in local libraries and healthcare facilities.

## **Taking Action Across the Divide**

Each element in our action plan is designed to meet the three criteria noted above, in terms of being a community-wide effort that is geared toward redefining relationships and achieving constructive social change. Let's look at several examples.

### **SisterNet Resource Centers**

SisterNet Resource Centers (SRC) are community-wide in that host sites will exist in Black hair salons and, later, libraries and health clinics. Each SRC represents a collaboration among various community partners. The host sites are contributing their facilities. SisterNet women are designing the SRCs and will serve as onsite volunteers for them. Prairienet and Parkland are contributing the expertise and computer technology needed to establish and maintain the public access computing stations at each SRC. Libraries and health services will also supply expertise and materials associated with the SRCs, such as recommendations for health books and videos, and equipment such as the models used to demonstrate self breast exams.

Relationships are redefined in the course of creating and managing the SRCs in that SisterNet women are empowered, and experienced by others, as leaders in this initiative. SisterNet women involved in the SRCs take on a new role as informal outreach partners for libraries and health services, providing a critical connection to a population traditionally deemed "hard-to-reach."

We hope that change will occur along several fronts with the implementation of SRCs. First, that Black women and service providers will gain a respect for and increase their involvement with each other as they engage together in a shared enterprise. We are also striving for long-term change in Black women's health practices by providing an opportunity to model and practice good health and information habits on a regular basis. SRC materials will emphasize important and easy-to-adopt changes, such as performing self breast exams and gaining the ability to critically assess health Web sites.

### **SisterNet Computer Training**

Through the Afya project, we are offering computer training to SisterNet women (two cohorts have already completed the four workshops that precede acquiring their own computers). Our computer

training is community-wide, held at computer labs in the local Urban League, Workforce Prep Center, and Prairienet labs. The curriculum was designed and implemented by Prairienet staff, with input from SisterNet and University of Illinois students.

Because SisterNet computer training puts Black women in the role of teacher and mentor (not just trainee), the traditional relationship between expert and novice is redefined. Our training is provided through a mentorship chain. A local Black woman who herself completed Prairienet computer training and then went on to gain a staff position at Prairienet is the main teacher for our Afya workshops. She is assisted by other Black women, serving as workshop volunteers, who have also gone through Prairienet's basic training. SisterNet women participating in the current workshops act as over-the-shoulder mentors to their peers, with those who know a little more about computers sitting next to and assisting women who are complete novices.

Constructive change is embodied in this chain of mentorship: SisterNet women who participate in our training workshops can themselves go on to become workshop volunteers and even teachers. We have also instituted activities within the training workshops that are specifically geared to facilitating constructive social and technical change. The health Web site review exercise that Imani Bazzell developed directs workshop participants to explore a given health site on the Web, find something of interest that will help them make a positive change in their lives, and then report back to all workshop participants on what they learned. Thus, along with Web browsing skills, women gain motivation to use the Internet because they have seen that it contains useful and congenial information geared specifically to them. They also gain a little confidence in public speaking through their oral reports to the class. Finally, they find, share, and discuss action-oriented health information.

### **SisterNet Health Fair**

This summer, the SisterNet Health Fair will be devoted to Afya goals related to improving both health and technology capacities through its focus on alternative/complementary health and how to find and use information in that arena. The Health Fair will be held in a local public library and comprise booths and activities set up by a wide range of health and information providers across our community, and include SisterNet women as presenters. For example, the University of Illinois health sciences librarian will set up a booth that provides information on how to access and use their resources, such as an instruction sheet for searching the PubMed (Medline for the general public) database of medical literature. SisterNet women will present material from the SisterNet technology/Internet guide they helped develop.

The SisterNet Health Fair will embody a means to redefine community relationships that was advocated by both providers and Black women in our needs assessment discussion groups. Providers were especially eager to develop ways to bring women and providers together in an informal and fun environment, where they could get to know each other outside of the official, more sterile situations that typify exchanges in hospitals and libraries. Another detrimental aspect of official exchanges is that the balance of power they represent is tipped so dramatically to the "experts," i.e., healthcare and information service professionals.

In designing health fair activities, we plan to lean toward those that are diagnostic and reflective in nature, that lead Black women to identify and follow up on changes they want to make in their lives. For example, we will hold mini workshops in which participants learn about and try yoga and tai chi, as well as how to find, assess, and use Web-based information related to alternative health. Women will contribute to a potluck refreshment stand where they sample nutritional food that can help reduce certain health risks and problems.



## Conclusion

The digital divide is really a socioeconomic, cultural, and power divide that exists at both local and global levels. If we don't deal with the mistrust and inequities at their roots, we run the risk that technology access and use will simply perpetuate age-old patterns. Through the Afya project we are experimenting with ideas about how to close the digital divide through digital literacy, access, training, and content initiatives at the community level.

But modeling and practicing social justice and community engagement related to Black women's health is a much more difficult nut to crack. How do we bridge the social aspects of the digital divide? As members of diverse communities, we all must look to change in our *social* literacy, access, training, and content efforts. In terms of *social literacy*, we must learn how to read each other, how to grant respect and validity to diverse funds of knowledge and social capital. We need to be *socially accessible*, opening ourselves to new relationships. *Social training* must occur as stakeholders throughout a community model and practice a shared vision of social justice. And finally, we need new *social content* in the form of artifacts and structures - both online and offline - that embody constructive social change. 

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**A Midwestern Community Networking Movement:  
A Planned Multitheoretical Multilevel (MTML)  
Social Network Analysis**

Kathryn Clodfelter  
Indiana University  
T603: Communication Networks  
December 6, 2005

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## Abstract

Spurred on by interest at the federal level in reducing the "Digital Divide," the state of Indiana launched the Access Indiana community networking initiative in 1995. Ultimately about thirty geographically-based community networks were funded, and the Indiana Community Network Association (ICNA) was created to serve as an advocacy organization for the community networks. However, tensions arose within Indiana's community networking movement, ultimately resulting in withdrawal of ongoing community network funding. Since then, some of the individual community networks have thrived; some have failed; and some continue to struggle to find purpose and means of sustainability. This paper describes a planned series of research projects to examine Indiana's community networking movement over time using Monge and Contractor's (2003) multitheoretical, multilevel (MTML) framework.

For full paper see: [http://www.kathrynclodfelter.info/papers/MTML\\_CN\\_SNA.doc](http://www.kathrynclodfelter.info/papers/MTML_CN_SNA.doc)

## Improving Health Care through Information: Research Challenges for Health Sciences Librarians

PRUDENCE W. DALRYMPLE

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### ABSTRACT

RESEARCH QUESTIONS IN HEALTH SCIENCES LIBRARIES are influenced by the health care environment. Three fundamental problems underlie most research in health sciences librarianship: determining what therapies are effective and of good quality, delivering information when and where it is needed, and in forms that will increase its use. Adapting to sweeping changes in all kinds of libraries is made more complex because of equally challenging shifts in medical practice and consumer health. Developments in health information research will be advanced through collaboration across disciplines and between organizations.

### INTRODUCTION

While many of the problems and issues facing health sciences libraries are held in common with other libraries, problems and issues specific to health sciences libraries are driven by the agenda of the health sciences in general. In health sciences, as perhaps in no other major library sector, the strength and importance of the national library, of grant funding, and of the community of users themselves, drive the direction of research. While health sciences libraries certainly face issues of collection preservation and management, digital library system design, effective organization and staffing, and public relations, health sciences libraries have unique challenges and opportunities. Health sciences libraries operate within the environment of health care delivery and are therefore affected by the trends and factors that characterize this environment. Quality health care—accessible to all who need it, at a fair price—is the primary driver in the health care

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environment. Fundamental to virtually every issue in health sciences librarianship is one or more of the following problems:

- Determining what therapies are effective and of good quality;
- Delivering information when and where it is needed in forms that will increase use;
- Developing an effective economic model.

This situation is not new. The Medical Library Association (MLA) founded the Library Research Section in June 1982; one of its stated purposes was to serve as an action group for the advancement of library-related research. This purpose was later expanded in 1996 when the name was changed to the "Research Section" to reflect interest in general research, not just that of libraries.<sup>1</sup> In the 1990s, MLA undertook the development of a policy statement on research. The opening paragraph of the research policy reflects these central concerns:

Society is concerned about access to high-quality health care at reasonable cost. Increasing numbers of health care leaders recognize the importance of information to excellent, affordable health care. Clinical decisions should be based on the scientific evidence traditionally recorded in the health sciences literature. The development and use of evidence-based practice guidelines demand a sophisticated analysis of the literature, creative ways of delivering information to practitioners at the point of care, and an understanding of the effect of information on practice patterns and costs. There is a growing need for computer-based patient record systems that can generate new scientific knowledge as a by-product of current care. (Medical Library Association, 1995, p. 4)

This statement reflects the influence of three external events that have resulted in sweeping changes affecting the role of health sciences libraries. As with all libraries, the advent of the Internet irreversibly altered practice, but in health libraries especially, the availability of free, public access to MEDLINE signaled a major shift in emphasis by the National Library of Medicine (NLM) toward providing health information to the public. Second, the report issued by the American Association of Medical Colleges (AAMC), which introduced the concept of the Integrated Academic Information Management System (IAIMS) in 1982, has continued to alter the landscape of academic health information centers, just as the release of the 1994 Joint Commission's *Standards for Accreditation of Health Care Organizations* affected hospital libraries.<sup>2</sup> Third, the rise of the evidence-based medicine movement has affected the role of information (data and knowledge) in the practice of medicine.

Within the practice of librarianship, the changes have been no less dramatic. Libraries as organizations have traditionally been concerned with the acquisition, organization, and dissemination aspects of the information transfer cycle. With the advent of digital information where "everyone is a

publisher,” librarians have increasingly become concerned with the creation of information. And, as they become collaborators in the design of information systems, they increasingly become involved with the *use* of information. These changes are especially apparent in the health sector, where health sciences librarians are beginning to recognize that “collections of data aggregated from individual health records, like the clinical data warehouse or the population health data set, can be viewed as part of the larger digital library needed to support biomedical research, education, and informed health care decisions” (Humphreys, 2000, p. 446).

In addition to, or perhaps because of, the magnitude of the changes and the importance of medicine, the field of biomedical information now includes a variety of potential collaborators, all of whom claim legitimate interest in the digital health library. As Betsy Humphreys (2000), associate director of the National Library of Medicine states, viewing health data as part of the digital library “not only opens up new funding opportunities but may also encourage fruitful multidisciplinary cooperation on problems common to knowledge based information and aggregated health data, including permanent retention of electronic information or the need to implement variable user access privileges” (p. 446).

The breadth and complexity of the research problems that this statement raises extend beyond the ability of a single researcher, or even a single sector of the health care environment. Collaboration across sectors is necessary, and substantial funding is essential. As health sciences librarians position themselves as players within this larger environment, they open opportunities for participation in and support from, the National Institutes of Health (NIH) through the NLM. At the same time, librarians must either compete or collaborate to ensure that they remain players in this domain and that the values associated with librarianship continue to be acknowledged in the development of research agendas.

This represents a major change from the early origins of the field. For most of the past century, academic medical libraries functioned much as academic libraries everywhere, working with faculty and students to support the medical school curriculum. In the clinical arena, hospital libraries served the information needs of physicians and, more recently, those of nurses, administrators, and allied health personnel. Increasingly, librarians compete with medical informaticians, basic scientists, health service statisticians, and clinicians for ownership of problems and approaches. A benefit to this competition is that the problems and research in this area are understood and shared to some extent by others and that a broader array of resources, both financial and methodological, can be brought to bear on problems. The multidisciplinary approach also can determine which research questions will be pursued.

Health sciences libraries form an integral part of the fabric of medical informatics, and librarians form an integral part of the research team. Thus,

the research problems that characterize this field are not limited to libraries *per se*, but are driven by the role of libraries and librarians in resolving issues that extend beyond formal library organizations and that certainly include, and even center on, problems of digital libraries and knowledge-based information and documents. Librarians have traditionally been concerned with knowledge-based information, and this will certainly continue to be the case in the future. However, problems of knowledge-based data can no longer exist in isolation from clinical data in order to resolve the problems facing health information systems in society. Because knowledge-based information is one component of "health information," librarians must work together with other health professionals to solve these research problems. The remainder of this article will focus on how these three fundamental factors—quality, delivery, and economics—form the central focus of research in health sciences librarianship. It will conclude by placing these health-related issues against the backdrop shared by all types of libraries, such as the evolution of digital libraries and the tension between ensuring universal access to information while protecting individual privacy and intellectual property.

### I. QUALITY: DETERMINING WHAT THERAPIES ARE EFFECTIVE AND OF GOOD QUALITY

Delivering quality health care to patients is central to the practice of medicine. To determine which therapies are most effective, to select which procedures "do no harm," and to manage one's practice in a cost-effective manner requires lifelong learning and continual updating. Yet, the vast size and rapid growth of the biomedical literature is an acknowledged impediment to maintaining currency in the field. According to some estimates, 2 million articles on medical issues are published annually worldwide (Balas & Boren, 2000, p. 65). To read everything of potential biomedical importance, it has been estimated that physicians would have to peruse 6,000 articles per day, and a general physician who just wants to keep up with the literature relevant to her practice would face the task of examining nineteen articles a day every single day of the year! (Balas & Boren, p. 66). In their role as providers of knowledge-based information to clinicians, medical librarians have traditionally culled the most relevant and precise information in response to a query. With the growth of end-user access to databases, medical librarians support clinicians and other health personnel in developing information management skills so that they can retrieve appropriate information to meet their information needs independently. In the last twenty years, however, medical librarians have extended these roles to include selecting the *best information* to fill the need. This practice—selecting the best articles, not simply those that are most relevant—is called quality filtering. It was first developed at McMaster University; McKibbin (1998) and others have written extensively on the concept and have been the pri-

mary developers of various techniques to ensure quality retrieval. Some librarians have taken quality filtering to its next logical step—participation in evidence-based medicine initiatives.

Evidence-based medicine, or more broadly referred to as evidence-based practice, is defined as the management of individual patients through individual clinical expertise integrated with the conscientious and judicious use of current best evidence from clinical research (Sackett, 1996). Originating in Great Britain with the Cochrane Collection, evidence-based medicine seeks to analyze research and to identify those studies that meet stringent guidelines of quality. The findings in these studies constitute the evidence upon which clinical guidelines for practice are based. The process requires extensive searches of the biomedical literature to identify the body of relevant studies. A team of experts, sometimes including librarians, examines the studies to determine whether they meet stringent criteria set up for scientifically valid research. The findings that meet this “gold standard” are then further analyzed and the results compiled into guidelines for clinical practice. Thus, the “evidence” referred to in “evidence-based medicine” is the scientific evidence that underlies current standards of practice. Evidence-based practice (EBP), then, is practice based on evidence that is found to be empirically sound and verifiable; it may be modified where necessary by the clinical judgment of the practitioner, based on his or her observation and experience. The role of librarians in this enterprise has been studied and advocated by Scherrer and Dorsch (1999), among others.

This shift, from relevance to utility/effectiveness, requires that librarians be capable of conducting additional analysis of the literature. For many years, the indexers at the NLM have tagged articles to indicate the type of research reported. The number of these tags is continually expanded so that articles that meet the standards of a randomized clinical trial (RCT), for example, are identified and searches can be limited to only those studies that meet the RCT “gold standard.” Since the body of literature retrieved may be larger than an individual has time to read and absorb and little work has been done to determine to what extent these limits are actually invoked, we know little about the actual effectiveness of this indexing enhancement.

While librarians are familiar with the traditional indicators of quality in the literature, such as peer review and citation patterns, identifying and selecting literature that is of greatest utility or effectiveness requires an additional set of criteria. Cranfield’s early studies on precision and recall were among the first in a body of research literature that focuses on information retrieval (IR). The IR research stream provides a basis for understanding the effectiveness of indexing filters, but additional research is needed to fully understand how to design systems for effective and efficient quality filtering that can be applied to evidence-based practice. The results of information-retrieval studies should be diffused to those who develop information delivery systems in order to ensure that any technological so-

lutions designed to meet clinical information needs effectively locate the appropriate literature.

In addition to examining the process of retrieving information, the literature itself presents an important research area. According to the report of a recent symposium sponsored by the American Medical Informatics Association (AMIA), medical literature is still beset with problems of research design; furthermore, even literature of high quality remains inaccessible to the practitioner (Sim et al., 2001). What is the role of librarians monitoring and encouraging quality medical literature, particularly information aimed at and available to consumers? The work of Ann Weller on the process of editorial peer review and its effect on quality should be continued to advance understanding of the way medical knowledge is created, controlled, and disseminated (Weller, 1987, 1990, 2002). Editors, publishers, peer reviewers, database developers and distributors, and indexers all work to ensure that quality literature is published, indexed, disseminated, and retrieved. How should their performance be evaluated? How might electronic publishing affect these practices? How can the "best" literature be assured of dissemination? How can mediocre and even erroneous literature be identified as such? And, how can these "controls or filters" be implemented without threatening the free flow of information?

Librarians continue to demonstrate their key role in the information transfer cycle by advocating that information be made available at a fair price. Librarians at the NLM also are responsible for the quality of the indexing, the selection of the journals to be indexed, the monitoring and testing of the interfaces and search engines that retrieve the literature, and even for the peer review of the literature. They also participate in the teams that select the articles for clinical guidelines, and identify the gold-standard RCT literature. Finally, they can be participants in the teams that identify and evaluate the literature that is brought to bear in the embedded, knowledge-based systems. Improved health care demands that practitioners keep up with the latest techniques and have the ability to evaluate the literature so as to know when to incorporate findings into practice.

It is almost a truism that the format and standards for research publications have remained stable for decades, despite the reality that most clinicians find research hard to read and understand, and even more difficult to apply the findings to practice (Balas & Boren, 2000). There is a body of literature on improving the clarity of abstracts, as well as their readability, but much of this research has been conducted outside of library and information science (Hartley, 2000) and focused primarily on the print literature. The effects of structured abstracts and other access mechanisms on the use of the literature and its effect on actual clinical practice, particularly as more and more literature is available electronically, has not been fully investigated. Standards for structured abstracts and their relationship to the indexing that is applied to them and the search engines that retrieve

them are all important research areas in which librarians have both the interest and expertise to make valuable contributions.

## II. DELIVERING INFORMATION WHEN AND WHERE NEEDED IN FORMS THAT INCREASE USE

Quality control of the literature is essential and the next step is ensuring that those in practice heed the findings of that literature. In short, it is the problem of connecting knowledge with practice. It has been recognized for decades that the diffusion of innovation is a remarkably slow and inefficient process; in medicine, it takes an average of seventeen years to implement clinical research results in daily practice (Balas & Boren, 2000, p. 66). Underlying the concern for timely delivery of valuable clinical knowledge is the prevention of health care errors. The Institute of Medicine's (1999) recent study revealing the extent to which medical errors are costing human lives and precious dollars has spurred greater interest in developing approaches to reduce errors as well as to improve clinical practice. Reducing error includes both errors of omission and commission, inappropriate therapy selection, and incorrect or incomplete diagnoses, as well as "mistakes" such as wrong dosages, flawed technique, or failure to prevent infection or contamination.

Connecting information with people has been a long-standing role for librarians and the ways in which this connection takes place are changing and expanding. The health sciences literature in the last several decades reveals a number of initiatives to increase the involvement of librarians in delivering information to the bedside. Determining the most efficient and effective ways of facilitating the diffusion of innovation to clinicians is an important and needed area for further research. Reports of programs such as clinical librarianship and the recent call for a new health professional, the informationist, have been largely anecdotal and hortatory (Lipscomb, 2000; Davidoff & Florance, 2000). The MLA and the NLM cosponsored a conference on the informationist concept in April 2002; a number of questions were raised about appropriate training, viable economic models, and the impact of the informationist on clinical outcomes (Shipman et al., 2002).<sup>5</sup> For example, systematic evaluation of clinical librarianship programs in a variety of settings, or a head-to-head comparison of multiple techniques would help determine which of these should be more actively pursued. Identifying variables and multivariate techniques to investigate how adoption of innovation takes place, and how this adoption can be encouraged are just two of many possible areas needing investigation.

Observation of information-gathering behaviors also contributes to developing delivery systems that actually work. Understanding the information behaviors of clinicians—how they seek information and how they apply it to practice—is a crucial first step in designing information delivery systems. In her 1998 review, Detlefsen concludes that the studies that have

been conducted have done little to build a theoretical framework from which to generate and test hypotheses. Furthermore, the environment in which most of these studies were conducted has changed dramatically. Detlefsen notes the potential effect of managed care; even more important is the growth of digital information. Often, these studies conclude that the clinicians do not have access to appropriate information (or they perceive that they don't) or that they do not understand how to use the information system and its results appropriately, or both. The enormous variety of specialties, the disparity among practice environments, and the number of varying information access points make it challenging to draw generalized conclusions.

Examining how information is used in order to design delivery systems is a high-stakes enterprise from which librarians can benefit in their efforts to find better ways of helping clinicians manage information in the course of their work (Ash et al., 2001). Librarians have an especially important contribution to make to this research. Because they have traditionally been personally and immediately engaged in assisting clinicians with information seeking, they are uniquely positioned to gather data by observation or survey, for example, that will augment the existing literature on information seeking and use. Librarians have already acquired considerable understanding in this area, as evidenced by the recurring chapters on information needs and uses in the *Annual Review of Information Science and Technology*. Extending this research stream further into health sciences is the next obvious and important step. Furthermore, the insights gained from this research are valuable to systems developers and producers both in the nonprofit and profit sectors, who are most interested in creating products and services for this market.

Knowledge management (KM) also offers an opportunity for applied research in health sciences. First developed in the business sector, knowledge management was adopted by corporate librarians as they have attempted to use its techniques to optimize those assets of an organization that reside in the heads of its employees—its knowledge workers. Knowledge managers elicit expertise, organize it, and make it available throughout an organization in order to deliver value to a business (Broadbent, 1998, p. 24). In a health care environment, knowledge managers can use and exploit the clinical expertise that resides in the organization and its professional staff to advance the mission of the organization. Knowledge management can also invoke “stored knowledge” that resides in external databases and knowledge sources in order to support and guide clinical decisions. While these appear to be fundamentally human activities, many KM applications are highly dependent on information technology. A recent example that should attract the attention of LIS researchers is a physician order entry system with built-in checks, balances, and alerts to create a “seamless web” in which the clinician no longer has to engage in information seek-

ing at all, but is “fed” information at a given point. Davenport and Glaser (2002) characterize one such clinical decision support system (CDSS) as having knowledge or information “baked in” because no separate information system need be pursued. Given the financial rewards available in the health care field, comparing a KM system that has an information intervention that is automatic and seamless against more traditional interventions mediated by information professionals raises questions that are urgent in their implications for the future of professional judgment.

Since it seems inevitable that CDSS will be an important tool for reducing medical errors, the design and development of CDSS can draw upon insights contributed by LIS research. LIS experience with point-of-use instruction embedded in catalogs and databases could be useful in designing CDSS and ensuring their use. Determining how the knowledge from the literature might best be “baked in” begs to be investigated. How can the findings of science be presented in ways so that they are accessible and useable by those charged with applying them? How can both literature-based and practice-based research evidence best be translated into machine-interpretable formats suitable to clinical decision support systems? In order for CDSSs to be built, there must be mechanisms to link the knowledge-based data to the system, to invoke it appropriately, and to update it consistently in a timely fashion. Can some formats that already exist—such as structured abstracts and enhanced indexing—be adapted for testing? And, can the results be disseminated to system developers and to opinion leaders within the health professions?

The kind of mandatory alerting and knowledge management that may be required for health care professionals differs from the delivery mechanisms traditionally offered to patients and consumers. While patients can be exhorted to become more knowledgeable and thus more responsible for complying with the course of therapy prescribed by their physicians, no such mandate currently exists for the well public. Because many, if not most, public library transactions take place by choice, examining information seeking behaviors and choices is a crucial research question. Consumers retain the freedom to choose whether to seek information and where and whether they will use it. The public library is a primary channel for this communication to take place, and designing systems for consumer health information dissemination is an important research topic. Describing the ways in which the general public can obtain high quality information and determining its effect on the health of the general population affects how libraries and librarians collaborate with the health care establishment. Some important lines of communication have already been established between the NLM, the MLA, and the American Library Association (ALA), in particular the Public Library Association division of ALA.

How to deliver information when and where it is needed in a form that will facilitate and encourage its use is an age-old question in library and

information science research, but the environment in which delivery of health information occurs continues to change. In the clinical arena, when patient care is at risk, information use by directive is becoming more acceptable. In such a scenario, information use cannot be avoided, and people become information users by force. In order for this to be acceptable to professionals, the information presented must be of the highest quality and relevance, or they will resist using the system that presents it. And indeed, some have expressed concern that automation has not always been beneficial and may negatively affect the ability of an organization to function effectively. Designing digital repositories of evidence drawn from multiple sources (literature, patient data, numeric values and statistics, for example) that can be shared among various audiences was recently named as a key area of research by medical informaticists; clearly it is a key area for librarians as well (Sim, 2001). In addition, testing the efficacy and cost-efficiency of decision support systems that involve a skilled human intervention versus those that are purely automatic has implications not only for physicians, but across many sectors in health care, particularly in nursing and in allied health, two areas that are frequently overlooked.

Library research has often focused on instructional effectiveness in helping users to navigate information systems. While there is certainly an argument to be made for including information literacy in medical school curricula and for providing updates to practicing clinicians, instruction is generally not viewed as an appropriate solution for clinicians. The real issue in demonstrating effective use of information in clinical care is reduced error and behavioral change. In this environment, instruction is important only insofar as education can be said to drive behavioral change. Questions that need to be asked include: "How can the rate of dissemination of information be increased so that behavioral change is effected?" "Does the human intervention of information professionals increase that behavioral change?" "Even if it does, is it affordable? Or, is the development of clinical decision support systems (CDSS) a more effective way to go?" "If the latter, how can the findings of research literature be made available in an efficient way so that they are incorporated into the CDSS in ways such that the integrity of the literature that librarians have come to know and value is preserved?"

### III. ECONOMICS: DEVELOPING AN EFFECTIVE PRICING STRUCTURE

Providing knowledge-based information—in whatever form and through whatever channel—has costs attached to it. If costs can be examined so that we understand the value of them, a price can be put on them. In the world of health care, discussions of price are inevitably driven by the question, "Who pays?" The answer to this question should lie in questions of value—To whom is the information valuable? Or in other words, what

difference does it make? If it can be demonstrated that availability of information makes a difference in outcome, in length of stay, in efficiency, in quality of care, then a third party such as an insurer is far more likely to cover the cost. If not, the cost is yet another “add-on” to an already enormous health care price tag. Despite the belief that something that affects a human life has value beyond the economic, the fact remains that belief systems that cannot also demonstrate economic value are far less likely to be implemented. Any discussion of economics, then, must originate with an examination of impact—what difference does it make?

The health science literature, and indeed the LIS literature in general, is sprinkled with studies that have attempted to address the impact question (Klein, et al., 1994; King, 1987; Marshall, 1992; Lindberg et al., 1993) These studies, though valuable, are limited in scope and generalization. Indeed, Urquhart and Hepworth (1996) compared several studies of the value of information to clinical decision-making and concluded that care must be taken when replicating a study in a different health context and culture and that multiple measures as well as openness to multiple outcomes are essential. Most studies are limited in that they also assume the intervention of an information professional; that is, they query clinicians as to whether an information intervention was helpful or not. A more useful question with less potential for bias is, “Does availability of information [in any form delivered through any channel] affect patient health care?” And even more interesting, “*How* does it affect patient care?” These questions, particularly if they are asked objectively without the possible bias of attempting to support the role of a particular kind of information intervention, are essential.

The MLA recently initiated a multiphase study aimed at determining the contributions of library and information services in health care. A preliminary taxonomy has been published that will serve as a basis for further research by generating hypotheses aimed at deriving the best approach for information centers to use in assessing their value (Abels et al., 2002). The underlying questions in the study are:

- What is the value of using library and information services to the hospital or academic health sciences center?
- What are the contributions that librarians, through the provision of services, make to the bottom line of the organization?

The taxonomy has five broad concepts that reflect the mission of hospitals and academic health sciences centers: clinical care, management of operations, education, research and innovation, and service. It builds upon and extends earlier work by Saracevic and Kantor (1997) who developed a taxonomy to assess the value of LIS to another specific population group—researchers. Saracevic and Kantor, however, concentrate on demonstrating the value of information to the *individual user*, while current and future research in health science must focus on the value of the information to

the *mission of the institution*—improved patient care (Abels, 2002, p. 279). Since reducing medical error results in both more effective health care, but also more efficient health care, it is of demonstrated value to an organization. Effective error reduction is a measurable result both in economic terms and in terms of quality patient care.

Bringing together organizations and institutions whose missions may be similar but whose practices, value systems, and cultures are different remains an enormous challenge, one whose resolution may lie beyond the ability of traditional research. Nevertheless, systematic observation and reflection, as well as political and economic models, may guide future activities. Determining what incentives are attractive to foster interorganizational cooperation is one area that might be investigated. Are there non-economic incentives, for example, that will encourage the construction and adoption of standards across health care sectors? Another big challenge for development of informational systems is electronic publishing; questions of licensing, copyright, and fair use abound throughout the entire information transfer cycle. It is notable that the NIH and the NLM have taken positions on these issues. Some derive from what might be termed their “legacy”—their products are already “owned” by the U.S. government—and their choice—PubMed makes full text of selected journals available over the Internet through the MEDLARS systems. Because the NLM is both creator and publisher of some key information products and services, it has adopted the strategy “to use its own products and services as test-beds for technical and organizational approaches to organizing and managing digital information. The Library’s goal is to gain experiences from concrete experiments so that it can contribute to the development of workable national standards and strategies and also provide useful advice to other publishers of electronic information” (Humphreys, 2000, p. 450). Despite these important and laudable moves, many questions remain. What are appropriate business models for electronic publishing, especially in areas where information is needed to advance health care? How do libraries, publishers, and scientific societies develop business models that address the key challenges facing the production, dissemination, and preservation of scientific information?

The design and implementation of effective delivery mechanisms—whether computer-based or human-based—is directly tied to the economics of health care, and the economy of health care information differs from other similar sectors in important ways. First, the major indexing system is in the public domain. The MEDLINE system and all its components are produced by the NIH, a federal agency, and therefore it costs much less to use MEDLINE than other databases in the sciences. Furthermore, it is available for research purposes at a reasonable cost. Second, the grants program of the NLM makes research into health informatics attractive and accessible to qualified researchers, particularly multidisciplinary teams. With these

resources available, there are opportunities to build a solid research base and armamentarium of tools that can be used both at the individual evaluation level but also at the level of large-scale research studies. Greater sophistication in articulating theory and identifying variables, as well as triangulation between qualitative and quantitative data, would advance understanding considerably. There is a continued need to assess the value of information services to the improvement of patient care. To the extent that library and information interventions can be shown to make a contribution to achieving any of the organization's mission-related goals, they contribute to the bottom line, even if the specific benefit of the contribution cannot be isolated or measured in monetary terms.

#### IV. DIGITAL LIBRARIES, INFORMATION ACCESS, AND INDIVIDUAL PRIVACY

Research focusing on the role of information in health care ("informatics research") is conducted today in a changing political, economic, and social environment. In an informatics research agenda, the AMIA named several factors affecting health care informatics: the growing availability of health information, changing roles of health care consumers and providers, globalization, more fluid institutional boundaries, increased politicization of health care, and changing work standards and practices. These factors interact with the increased ability to create more integrated information systems capable of linking clinical, personal, and organizational performance data with the drive to develop computer based lifelong patient records and establish systems that are interoperable, even across international borders (Kaplan et al., 2001). Although this agenda originated from an AMIA meeting, health sciences libraries and librarians are part of this environmental evolution, as indicated earlier, because of their involvement in organizational changes brought about by the IAIMS report, Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards, and digital libraries.

The term "digital libraries" has become an accepted part of modern vocabularies, yet it often takes on varied meanings. In health care, digital libraries may include health record data as part of the library, leading them to be described as a "Web-era reformulation of the long-standing informatics goal of seamless integration of automated clinical data and relevant knowledge-based information to support informed decisions" (Humphreys, 2000, p. 444). When the scientific literature is seen as a collection of print-on-paper articles, and the patient medical record is a chart of handwritten notes, transcriptions and coding for financial reimbursement, the two appear to have little relationship to one another. But when they are converted to a digital format, each can be viewed as simply another node in the information transfer cycle. Furthermore, when the coding systems used to analyze and retrieve items are rationalized so that they interconnect, sud-

denly a web of patient data and knowledge-based literature emerges. The vision, funding, and architecture to create a method for these varied systems to interconnect originated with the NLM's Unified Medical Language System (UMLS) project in the mid-1980s. The UMLS maps relationships among various coding systems used in the medical environment such as the International Code for Diseases (ICD), Clinical Procedural Terminology (CPT), and Medical Subject Headings (MeSH). Constructing the UMLS has been an enormous and complex undertaking, one that probably could not have been accomplished without the resources of a major institution such as the NLM for which it was a priority. As the idea and the reality of IAIMS evolved, the value of a system capable of linking and integrating different types of digital biomedical information became increasingly recognized. Furthermore, it provides a workable example of a digital library, presenting the user with a coherent view of an organized, selected, and managed body of information.

When this goal was first formulated it was assumed that clinicians were the targeted beneficiaries of the program. As the audience for health information has expanded to include public health professionals, patients, and the well public (consumers), there is a need to make information available to support patients' participation in choosing treatments and deciding on strategies for managing their health problems.

Along with its obvious benefits, the availability and delivery of health information (knowledge-based literature, clinical guidelines, and health record data) has introduced many complex policy questions. Solutions to these questions will require investment in the production of better materials, training for clinicians and other information providers in how to use them, and the development of an accreditation system to help users to judge the quality of health information. Now that various systems can "talk" to each and data can be shared rapidly and easily across geographic, conceptual, and administrative barriers, what controls must be put in place to assure access while protecting privacy? Indeed, at the 2001 spring conference of AMIA, a series of recommendations for public health informatics recognized that a major challenge is to develop "coherent, integrated national public health information systems that will integrate efforts between public health and clinical care systems and will address pervasive concerns about the effects of information technology on confidentiality and privacy" (Yasnoff et al., 2001, p. 536). It can be easily seen that the research questions that emerge from the creation of the "seamless web" extend beyond technology application and evaluation into policy analysis. Some of the policy research may be guided by the increasing involvement of the library community in the design and delivery of consumer health information.

## SUMMARY

Research in the health sciences is characterized today by a need for multidisciplinary approaches—not just in methodology but through real collaboration. Health care is a major factor in national economies, and it affects everyone. Those for whom information is a central concern are challenged to describe how information makes a difference in health. Making sure that clinicians are provided with the best information that truly describes effective therapies, ensuring that consumers and patients have access to reliable information, and determining how best to deliver that information in a form that will be used are enormous tasks. While research alone cannot change the world, it can provide insight and direction to those who are in a position to take steps that will make a difference. Health sciences librarians and those who are concerned about the future of health sciences libraries are in a position to bring their expertise, their values, and their commitment to ensuring that the information infrastructure that supports health care decisions is the best it can be and that it is available to all who choose to use it.

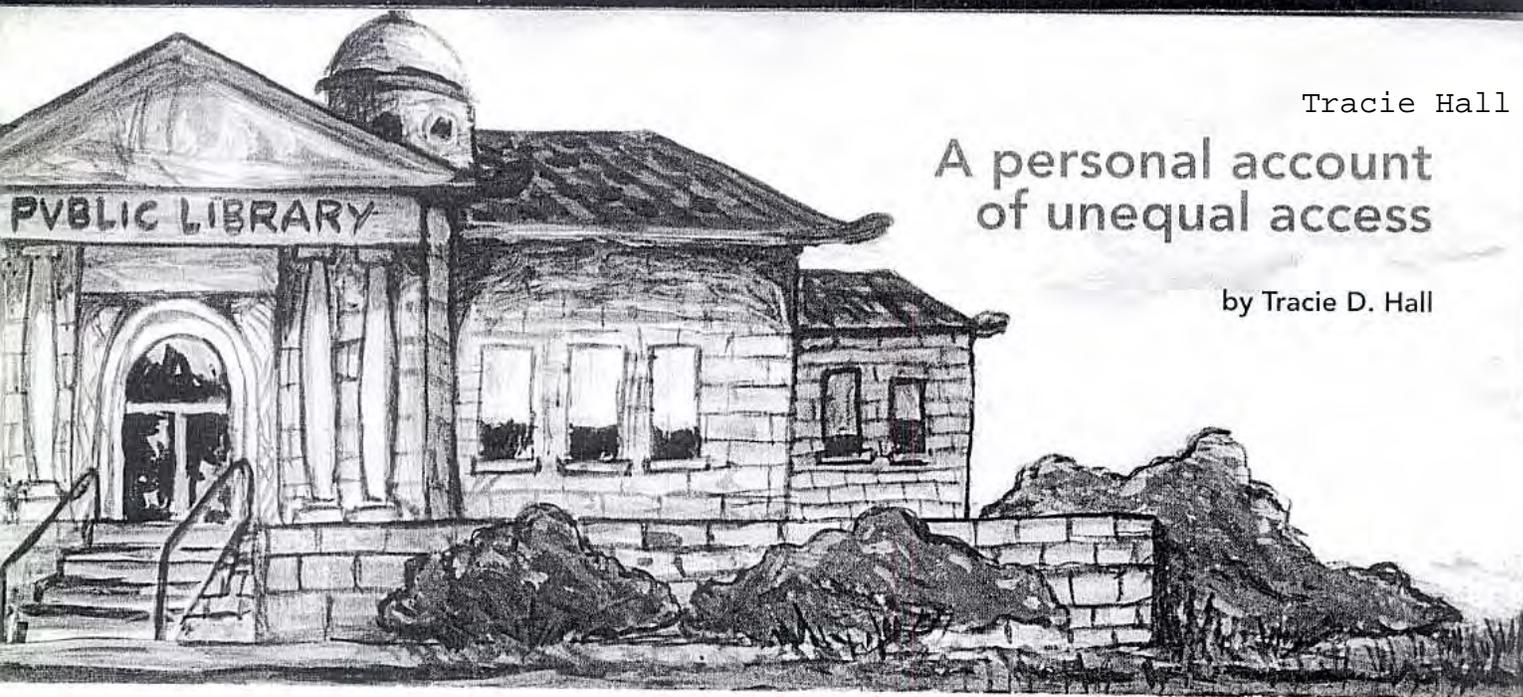
## NOTES

1. The history of the Research section, written by Robert Braude, is available at <http://research.mlanet.org/>. Accessed November 7, 2002.
2. For a discussion of the impact on hospital libraries of both IAIMS (Integrated Academic Information Management Systems) and JCAHO (Joint Commission on Accreditation of Healthcare Organizations), see Doyle, J.D. (1999). IAIMS and JCAHO: Implications for hospital librarians. *Bulletin of the Medical Library Association* 87(4), 383–386 and Schardt, C. M. (1998). Going beyond information management: Using the Comprehensive Accreditation Manual for Hospitals to promote knowledge-based information services. *Bulletin of the Medical Library Association* 86(4), 504–507.
3. Additional information about the informationist conference is available from the Web site of the Medical Library Association at <http://mlanet.org/research/informationist>. Accessed November 4, 2002.

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Tracie Hall

## A personal account of unequal access

by Tracie D. Hall

# Race

**M**y family is from the Deep South, a small town the size of a speck on a Louisiana map. By the early 1950s, my grandmother and grandfather and more than half of the 16 siblings they shared between them had relocated to the West Coast. It was a move precipitated not as much, I am told, by burgeoning job opportunities for blacks as by a certain incident between my grandfather and a white carnival ride operator who'd called my mother and uncle, then grade-schoolers, names inciting a vicious fight that ended with the operator clutching a near-severed ear and my grandfather hopping the first train out of Grand Cane and riding it to the end of the line.

By the time my grandparents purchased what my grandmother referred to as an "old folks home"—a big white house on a corner lot that they converted to a single residence with an added-on barber shop where my grandfather reigned as emperor—their house seemed palatial compared to the series of single rooms and garages they had rented for a family grown to include four children and random young relatives similarly seeking to escape choking racial segregation in the South.

Long before I appeared on the scene, the neighborhood my family called home had become synonymous with poverty and dysfunction, a status exacerbated by the riots of

the mid-'60s—chaos that would claim my eldest sibling and that would permanently mark and define our town. When I was growing up, we didn't have grocery stores, just high-priced corner stores where breakfast cereal sold for black-market prices. The hospital where I was born had been condemned and replaced by a health clinic comprised of a set of permanent trailers. If you got sick and needed to get to a real hospital—or worse, if you got very sick and needed an ambulance to get to that real but distant hospital—then heaven help you.

No grocery stores, no hospitals. What we did have were churches, lots of them. But even dearer to me (though I

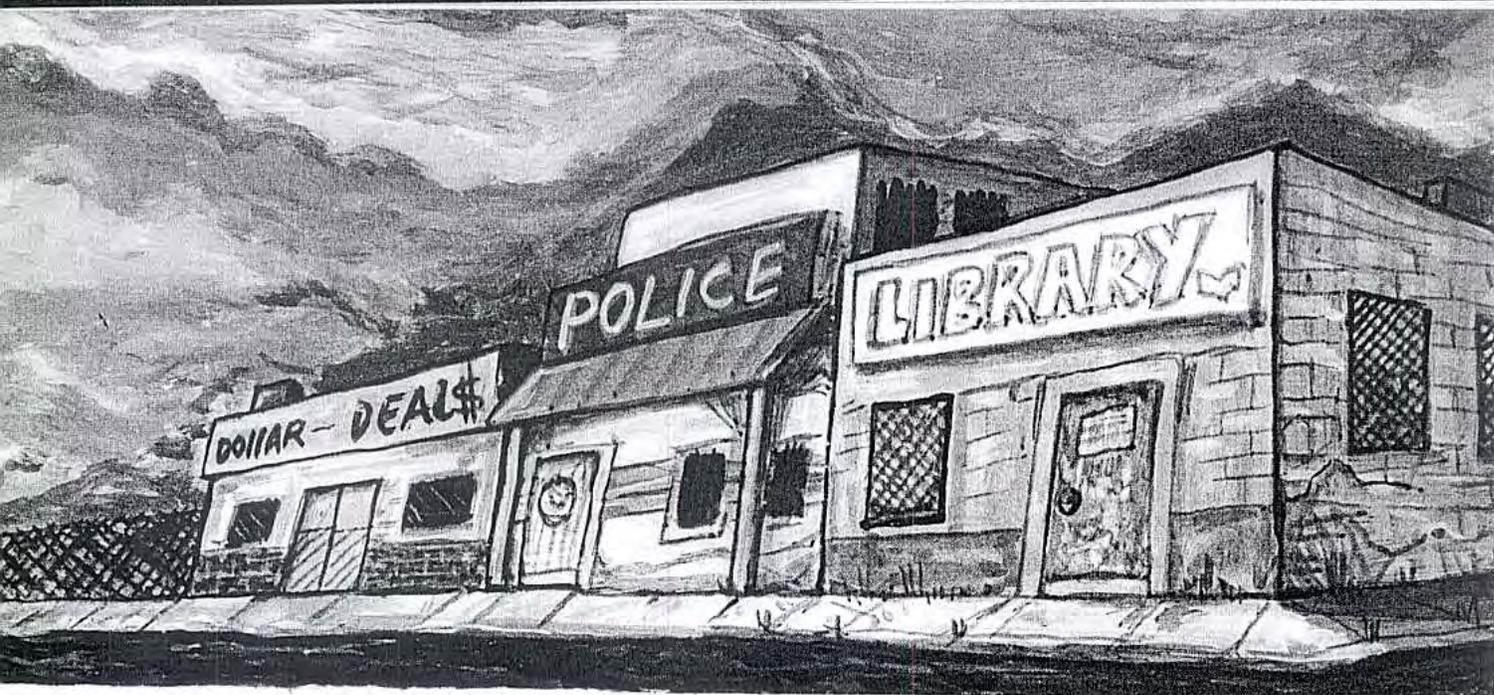


illustration by Ricardo Hernandez-Huerta

# Place

would not admit this to my preaching uncles) was the library. Anti-theft bars covered every possible point of entry. Not a haven by any means, its two reading areas—one for adults and the other for children—were each no larger than my grandparents' sitting room. The building itself was eclipsed by the adjacent police station and neighborhood jail. It was painted a yellowish color that, depending on how the sun hit it, read from pale canary to drab mustard. The real world peeked in through the windows and waited for little kids near the bathrooms. But it was our "yellow palace." My grandmother would take me to that library weekends and summers and sit quietly with me in the children's area, where I obsessed over the one book she would let me take home. She was terrified of accruing fines, and returned my books as religiously as she attended Sunday services. The only book I had ever seen her read was the Bible, but she held our little branch library in the highest regard. "We didn't used to have nothin' like this at all," she'd say on our slow walk home. I never asked her why.

Around the time I reached the 4th or 5th grade, I'd realized that although they were both highly intelligent—blessed with quick wit and preternatural common sense, neither of my grandparents had much formal schooling.

My grandfather had to be shown where to place his jagged signature on my school forms. My grandmother relied on her children and grandchildren to "read her bills." I didn't know anything about literacy rates or segregated schools back then. I just knew that my non-driving grandmother, who rarely took her 70-year-old self out anywhere besides church and the doctor's office, was willing to walk long blocks through the neighborhood to the library to watch me fret for two hours over one book. This simple act, exciting to me, was for her a kind of reparation.

## Let's pretend

My contentment with the yellow palace was challenged by a visit to a branch in a wealthier neighborhood in my 5th-grade year. It was one of those "let's pretend to be pro-integration" exercises that post-*Brown v. Board of Education* schools engaged in back then. Loaded onto a bus, our class was whisked away to experience a school on the other side of the tracks. Not only did we get a chance to visit their classrooms but we also paid a visit to their public library, a gleaming white, newly blue-carpeted edifice to self-learning. I was speechless. Not one burglar bar. Instead, rows and rows of reading materials and soft chairs. The other students lounged on beanbags, which were then all the rage.

I seethed silently. We were told we could borrow books if we held city library cards. I was confused. How could this library be part of the same lending system? My understanding of library borrowing privileges was nonexistent then, but I knew instinctively that something was wrong. I thought of the yellow palace, of the weekly hajjes my grandmother and I made, and understood finally a Southern expression my relatives would often utter in moments of disgust when they perceived that someone was settling for less than their due: "Satisfied with nothing." I thought of the yellow palace's early closing hours as if it were racing the streetlights, of how the cramped quarters spilled over with children all talking and reaching at once, and of how the clamor frustrated the librarians and shortened our story times.

At the white cathedral, the multiracial library staff smiled and talked in quiet voices and seemed to like children. I was so impressed and unsettled that I begged my mother to locate the library and to drive my grandmother and me there. I must have been convincing because my mother, who was always working or always on her way to work or recovering from it, complied.

On the day my mother drove us to the library across town, I remember my grandmother's face, her look of silent surprise. She is not here anymore to ask how many libraries she'd visited in her lifetime, but it was clear that the white cathedral had taken her voice away. Though I'd excitedly turned my library card over and over in my hand all the way to the library, and though my mother announced that I could check out more than one book because she didn't have time to bring me back midweek for another, the shock on my grandmother's face dampened my appetite. The inequities between the two libraries had restated our insignificance. "There is something inferior about the people who live over there," the white cathedral seemed to be taunting.

I left the library without checking out one book. My mother, who had probably spent her time reading the newspaper, noticed my empty hands and exclaimed her incredulity at driving all this way for nothing. But even her scolding couldn't soften my resolve. That would be my last visit across the tracks to a library. Some time after that, the pilgrimages with my grandmother to the yellow palace tapered to an end. Even when I was old enough to walk there by myself, I didn't.

### Memories filed away

Long before I stepped behind a reference desk as a librarian, public libraries had become the site of the most personal socioeconomic inequities I had experienced outside of schools. But I rarely let myself think about that. In the effort to believe that libraries offer the greatest hope for social reconciliation we have today and to work toward that end, there are some memories I keep filed away.

Like so many other library workers and advocates, I want to believe that the library is unerringly socially progressive, occupying some sacred dimension that sets it apart, above. But the truth is, there is no such vacuum. More often than not libraries mirror rather than oppose local politics and socioeconomic stratifications. As the song goes, *Them that's got shall get / Them that's not shall lose / So the Bible says and it still is news.*

In the West and East Coast libraries in which I have worked and in the many libraries I have visited as the former director of the American Library Association's Office for Diversity, I have seen evidence that libraries can and do serve as vanguards for social justice. But I have also been disheartened by the reification of institutional racism and classism. I remember making an instant enemy of a librarian who, in trying to rationalize a branch's low circulation, explained to me after a tour of the facilities her disappointment that the largely black, mostly working-class community simply didn't read. When I remarked that perhaps the community didn't find the collections or the furnishings compelling—the books sagged and leaned on the shelves and probably would have self-ejected if they could have defied the laws of gravity and ended up on the ceiling instead of the spotted and threadbare carpet. Her glare told me that what she had stated as a final pronouncement I had misinterpreted as a conversation-opener.

As a speaker and trainer facilitating library diversity and customer-service workshops, I have been inspired by the lengths to which some libraries are going to make their services relevant to the lives of their users. But I am also increasingly dejected by libraries that, intentionally or not, detach themselves from their surrounding communities, rationalizing gaps in service by claiming the incapacity of their resources to accommodate their users. Even in the language used to describe these would-be, could-be users I sense a cover-up. And behind this thinly veiled discourse I can clearly see the outline of an elephant tucked behind the curtains. I, who welcome the word "diversity" for the necessary inclusivity it offers us 21st-century beings wearing our layers of identity like an onion wears its skins, have come to agree with education advocate Jonathan Kozol's conclusion in *Harper's Magazine* (September 2005) that the term "diverse" in schools—and I would add, libraries—has become "no longer a proper adjective but a euphemism for a plainer word that apparently has become unspeakable."

### Looking for change

Last summer I had the chance to revisit the yellow palace for the first time in almost 30 years. I had returned home for almost a week for our family reunion, my longest stay since leaving for college. A decade of passages—my grandparents, my mother, uncles, cousins, in relentless

succession—had cast urgency on such gatherings. My aunt, who now lives in the big white house alone, had requested that I spend more than my usual three-day weekend. I tried explaining the limitations of my adult schedule, but she wasn't having it. Clothes were an afterthought as I packed my laptop. I had deadlines to meet, lines of communication that needed to remain open. I was sure my world would implode if I were offline for more than two days.

Just 18 hours after landing in L.A., after a night of remembering and not remembering family stories, then a day chasing down helium tanks and stewing peaches for cobbler, I couldn't take it anymore. I needed internet access. I tried in vain to explain this urgency to my aunt, who had balked when we replaced her rotary phone, and grabbed my laptop bag and headed for the library. Her parting words to me were, "Be careful." Walking those

the four children and one man who waited with me at the table. "Oooh, she got her own computer," one of the kids exclaimed. "Yeah, but I don't have the internet." I answered. "Ahh," they collectively commiserated. The man smiled and shook his head understandingly. Always a librarian, I asked them what they were waiting for, hoping that maybe my webless machine could be of service to someone else. One girl no more than 11 or 12 explained that she had come from Texas to visit her grandmother, and now that the summer was winding down she needed to get online to print a copy of the electronic ticket that her mother had purchased for her return home. She nodded towards a crumpled piece of a paper bearing a penciled code. "My grandmother don't have a computer," she trailed off. I told her that she looked like a pro, but to let me know if she needed help. She smiled into the note

## Rules that unintentionally compound and redouble social exclusion, economic isolation, and, inevitably, race and class lines, abound in libraries.

long blocks for the first time in years, no rental car windshield between me and the graffiti and "Beware of Dog" signs, it was obvious that the neighborhood's disenfranchisement and desperation had remained constant. And though I held my laptop bag too close at first—forgetting that I was home, that I had not too long ago been on the other end of the stare—there was something about that walk that revived my hope in the social realities and divides that this profession is uniquely positioned to confront and perhaps transform.

By the time I made my way to the new iteration of the yellow palace—now relocated, expanded, and situated across the street from a thriving shopping plaza that features the wonder of all wonders, a grocery store—my head was swimming with possibilities. My euphoria was short-lived. Inside the library the large majority of children and adults gathered around a bank of computer terminals each waiting for their precious hour of allotted time. Inquiring about wireless service, I was dismayed to learn that although wireless access was available at some locations, it was "not available at our branch." At my request, I was given a list of libraries in neighborhoods as removed from ours as the white cathedral. I took the librarian's advice and entered my name to the list, resigned to the two-hour wait ahead. In order to access my time I was advised that I'd have to sit at a designated table. If I were out of my chair when my time approached, I would lose it.

Afraid to wait 120 minutes in vain, I fastened myself to my chair and took out my laptop, more for distraction than anything else. My open laptop attracted the attention of

on her lap. The other children mentioned games and websites, some of them new to me. The man, who identified himself as native of Jalisco State in Mexico, hunched his shoulders as if in apology. "No money to call," he said.

There we were, in an era where time has become the ultimate commodity, waiting for access, my wireless-ready laptop a privilege made useless there on the wrong side of the tracks. But to localize that moment, to act as if as it belonged to that one specific library, would be too simple. Rules that unintentionally compound and redouble social exclusion, economic isolation, and, inevitably, race and class lines abound in libraries. There is no indemnity.

Glued in place I thought again of the libraries I have spoken and trained in nationwide. I thought of the libraries in which I have worked as front-line service provider or manager and of all the times I had been complicit in or had failed to confront decisions that had similarly served, though certainly not by design, to disenfranchise groups of users. I knew that had I picked up a phone to call some administrative office to protest what I saw as a kind of de facto discrimination there would be a voice at the other end of the line to offer a hundred theoretically legitimate reasons why things were the way they were. How many times had I been that voice?

Our policies and rationalizations do not drive the bus. We do. Yellow palaces and white cathedrals exist because we who work in libraries create them as well as the distances between them. We want to believe that libraries are politically neutral and colorblind. To sustain this belief we close our eyes as we steer. But who gets run over in the process? ■

## About things Open - a quick primer on openness

Nancy John  
Digital Publishing Librarian  
University of Illinois at Chicago  
February 2007

## Budapest Open Access Initiative

- BOAI
- 5 years old this month
- <http://www.soros.org/openaccess/>
- A statement supporting open access
- Advocacy:
  - Self-archiving
  - Open access journals
- UIC signature is in process; in the meantime, individuals can sign on to support

## SPARC - Scholarly Publishing and Academic Resources Coalition

- Headquartered at ARL since 1998; SPARC Europe at Oxford since 2003
- Current director: Heather Joseph; SPARC Europe: David Prosser
- Membership organization
- <http://www.arl.org/sparc/>
- Working to support open access through free journals, more reasonably priced journals, developing tools and economic models
- UIC is a founding member

## DOAJ and OpenDOAR

- Directory of Open Access Journals (<http://www.doaj.org>)
- Open Directory of Open Access Repositories (<http://www.opendoar.org>)
  - a comprehensive and authoritative list of institutional and subject-based repositories, as well as archives set up by funding agencies
  - a joint collaboration between the University of Nottingham in the UK and the University of Lund in Sweden
  - funded by the Open Society Institute (OSI), along with the JISC, CURL, and SPARC Europe.

## Self-archiving

- Open Access self-archiving (Green Road)
- Open Access publishing (Gold Road)
- SHERPA: Securing a Hybrid Environment for Research Preservation and Access
  - Project Romeo (Rights Metadata for Open archiving)(<http://www.sherpa.ac.uk/romeo.php>)
  - [JULIET](http://www.sherpa.ac.uk/juliet/index.php) Research Funders Archiving Mandates and Guidelines (<http://www.sherpa.ac.uk/juliet/index.php> )

## The Open Archives Initiative - an overview (with specific reference to the UIC Library)

Nancy John  
Digital Publishing Librarian  
University of Illinois at Chicago  
February 2007

## Why this presentation?

- Both the publishing systems (OJS and Indigo) we've implemented this year, and the conference management system we used for the FM conference, make use of this technology
- Staff expressed interest during the recent Indigo sessions, so this is to meet that interest
- Sessions/briefings on other topics (e.g. LOCKSS, digital migration, Dublin Core / Metadata, XML, EADs etc.) can be requested at any time (at least until September 2007) - nrj@uic.edu

## What is OAI?

- "The Open Archives Initiative develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. The Open Archives Initiative has its roots in an effort to enhance access to e-print archives as a means of increasing the availability of scholarly communication"  
-- from [www.openarchives.org](http://www.openarchives.org)

## OAI governance

- Sponsors
  - CNI (Coalition for Networked Information)
  - Mellon Foundation
  - Digital Library Federation
  - National Science Foundation
- Executive
  - Carl Lagoze, Cornell
  - Herbert Van de Sompel, LANL

## OAI is changing

- Originally the idea was to federate disparate repositories
- The technology though is quite powerful and is being adapted quickly to link and federate all kinds of data
- OAI is in a state of flux - it's a little unclear what it's really about because it's changing
- Currently there's lots of research and development activity going on about OAI

## What's the fuss about?

- When the idea for creating databases of library digital objects, of university faculty intellectual output etc. first was proposed, the biggest obstacle was the lack of a single front door
- Who wants to do 10 or 100 or 1000 separate searches?
- Would the owners of the databases have to specialize and host the subject materials of others?
- Couldn't there be an OCLC for these files? A portal? Could Z39.50 work?
- But would people deposit the records? How could we rationalize varying standards of practice?

## Too much stuff, too much work

- The spectre of 100000s of items
- The notion that the records would be good enough but not 'catalog perfect' (e.g. authority control issues)
- The nagging question: can't the computer do this work for us?

## The answer:OAI

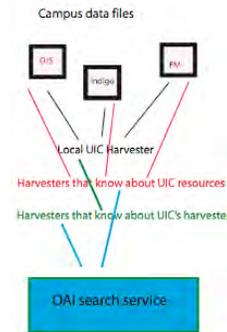
- Three parts
  - Databases that could output their cataloging in a standard format automatically, much like a Web server serves up a Web page
  - Software (called a harvester) that could ask a database for its output and then store it, much like a Web spider
  - A service that could build the retrieved and stored data into a user-friendly way of searching the content of 1000s of databases, much like Google or Yahoo!
- Furthermore, if the data output contained a Web link for each object, the services would provide one-click access to the objects

## The three-part model

- To participate all one has to do is to be a data provider
- Some participants will make and run data harvesters
- Some participants will make services using the data

# Harvesting

- Note: one can harvest from many sites locally and create a single OAI data provider for an entire campus, or one can have many data providers on a campus



## So how does this work?

- There is a Protocol for Metadata Harvesting (OAI-PMH)
- There are two classes of participants in the OAI-PMH framework:
  - Data Providers administer systems that support the OAI-PMH as a means of exposing metadata
  - Service Providers use metadata harvested via the OAI-PMH as a basis for building value-added services.

## Duties of Data Providers

- Host a repository that is network accessible and can process the 6 OAI-PMH requests according to the protocol
- In response to a request from a harvester, the repository provides standard xml that contains the metadata
  - Metadata can exist pre-formatted or be generated on-the-fly by the data provider
  - The metadata must be a 'known' format - e.g. unqualified Dublin Core, METS
- Register at openarchives.org and pass their conformity test
- <http://www.openarchives.org/Register/BrowseSites>

## What's a record look like?

- See the last page of the handout

## And the harvester ...

- Can ask for all records
- Records that match a certain variable:
  - New (creation timestamp after mm/dd/yyyy)
  - Updates/modifications (creation before but update timestamp after)
  - Subject: math
- Uses http:
  - `http://arXiv.org/oai2?verb=GetRecord&identifier=oai:arXiv.org:cs/0112017&metadataPrefix=oai_dc`

## The Service

- Really, this is what this is all about
- Many services but we'll only look at three
- The list of registered providers:  
<http://www.openarchives.org/service/listproviders.html>

## Services

- OAlster  
<http://oaister.umdl.umich.edu/o/oaister/index.html>
- D-LIST <http://dlist.sir.arizona.edu/>
- OpenDOAR: <http://www.opendoar.org>

## OAI @ UIC

- Open Journal System:
  - Behavior and Social Issues
  - First Monday
- Indigo
- EADs
- Carberry Collection

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## Multiple Perspectives in Learning and Collaborating

### A Case Study of the HelpSource Collaboration

Adrian Kok, Dominican University, United States of America

*Abstract: The existence of a digital divide among social work organizations is manifested in the lack of computers and Internet access, organizational support, and the availability of resources for the integration and continued use of information technology. This phenomenon is described as the “organizational divide” which results in the uneven development of knowledge and information literacy skills among helping professionals. The purpose of the study was to use a situated approach in evaluating participation in a community technology group. The HelpSource Consortium is a group of the information providers, social workers, librarians, and health care providers from several communities in East Central Illinois who used a compendium approach in developing a comprehensive website of human services and community information (<http://www.helpsource.org>). Organizational participation, knowledge exchange, and unique outcomes among participants were examined. The findings revealed unique differences in terms of knowledge gains, motivation, and outcomes as a result of their participation with the group. Knowledge assimilation, application of information literacy ideas, sharing of new ideas, and the formation of new partnerships with community agencies consistently emerged as themes from the interviews. Although the findings indicate that human service professionals learn new IT knowledge and information literacy skills from their more technically savvy peers and from participating in the group, participants saw the relevance of the social and political context in influencing their participation, shaping their technology use and maximizing organizational outcomes. The implications are described in terms of the mechanisms that facilitate technology learning in community groups, and the best practices, which sustain interdisciplinary collaboration among professionals in developing information and referral websites.*

Keywords: Interdisciplinary Collaboration, Multidisciplinary Collaboration, Collaboration, Information Literacy, Organizational Divide, Community Technology, Learning

### Introduction

**I**N A COMPETITIVE environment with shrinking fiscal resources, human service organizations are more likely to share resources by collaborating in coalitions, partnerships, and alliances to address social problems. Collaborations accomplish mutual goals, reduce duplication, create awareness of problems, enable agencies to pool resources, and provide creative opportunities for problem solving (Graham & Barker, 1999; Mattesich & Monsey, 1992). The research has focused on the benefits of interorganizational collaboration in hospice teams (Parker-Oliver, Bronstein, & Kurzejeski, 2005), schools (Bronstein & Abramson, 2003), child welfare (Lawson & Anderson, 1996), and the delivery of social services to the aging population (Bronstein & Admiraal, 2005). Collaborations involving the delivery of information and referral services have been focused on information and referral specialists in the area of health and human services, and librarians who are involved in delivering community information (Fagan, 2002). The provision of health and information services with the collaboration of marginalized groups has been described (Bishop, Mehra, Bazzell & Smith, 2000; Mehra,

Merkel, & Bishop 2004). The current research extends the research on community information systems by illustrating the processes of inter-institutional collaboration among information and referral professionals, librarians, health care and human service professionals in addressing the community's informational needs and its impact on participants.

### Literature

The goal of the paper is to illustrate the processes of inter-institutional collaboration among information and referral professionals, librarians, health care professionals, and human service professionals in addressing the community's informational needs and its impact on organizations and their participants. The objectives of the paper are threefold (a) to examine the events and factors which led to the setting up of a centralized information and referral website (<http://www.helpsource.org>) by information providers and health care providers in East Central Illinois; (b) to examine the factors which sustained the collaboration; and (c) to assess unique organization outcomes for the participants. Understanding the experiences of group members of this partnership may yield insights into practices that foster the con-



tinued development and the productive nature of these collaborations. The results of the research would also be of interest to organizations which are collaborating to make community information accessible on the Internet and are transitioning from a fragmented delivery system to a more consolidated approach. The article also highlights interpersonal and interorganizational dynamics that are useful starting discussion points for a nationwide movement towards the implementation of a one-stop information and referral service for human services, also known as 2-1-1.

The rationale for the study is based on the digital divide issues among the human service organizations, the potential benefits of the collaboration to agencies and to participants, and the unique contribution of the situated evaluation framework.

### **Organizational Divide**

Research has shown the existence of an organizational divide which results in the gap between those organizations that have the equipment and resources to integrate information technology (IT) tools into their ongoing operations and those that do not (Kirschenbaum & Kunamneni, 2001; Robertson, 2001). This disparity is reflected in the lack of Internet access, and computers among community organizations (Biagianni & Jensen, 1996) and uneven access to computers between direct practitioners and those in administration (Hughes, Joo, Zentall, & Ullshney, 1999). The digital divide is also manifested in larger nonprofit organizations that use some form of IT compared to smaller organizations (Princeton Survey Research Associates, 2001) and larger counties are more likely than smaller ones to use information technology to manage organization functions (National Association of Counties, 2001). Another indicator of the organizational divide is that health, business and education services utilize more IT management and support staff compared to the social services (US Bureau of Labor Statistics, 2000). These disparities result in the missed opportunities to harness the potential benefits of IT for professional development, such as access to health information, access to grant information, awareness of community events, and up-to-date knowledge on changing welfare policies that affect clients. The involvement of the participants in collaboration is hypothesized to lead to gains in participants' knowledge about how IT tools are used and assimilated into practice. This could lead to a strengthening of their affiliation and ties with the group. This learning between and among members could sustain their long-term involvement with the group.

### **Learning in Groups**

Lave and Wenger (1991) proposed that situated learning takes place under conditions of legitimate peripheral participation. In their view, "learning is not merely situated in practice --as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the lived-in world" (p. 35). Accordingly, learning is a social activity in which members collaboratively construct their understanding of the artifacts and the resulting phenomena. It is a process in which a novice becomes enculturated in the socio-cultural practices of the community. Through the exchange of ideas, reflections of their activities, and observations of their actions on outcomes, members become engaged. Although there is little observable teaching, learning takes place. The study utilized the principles of legitimate peripheral participation as a theoretical framework to examine the mechanisms, which led to knowledge gains. The benefits of these interactions between experts and novices to the participants' professional work will be examined within the situated evaluation paradigm.

### **Situated Evaluation**

Bruce and Rubin (1993) described situated evaluation as a method, which analyzes the varieties of use of an innovation across contexts. The focus is on the idealization of the innovation, the setting in which the innovation occurs, and the realization of the innovation-in-use. There is an emphasis on the transaction between the user and the innovation. For the purposes of the study, the "innovation" refers to the collaboration artifacts, such as the website, CD-ROM, and downloadable directories. This is a useful paradigm for the research because the realization of any technology is dependent on the social system, the user, the available support for IT integration in professional practice, and the participant's knowledge about the innovation (Bruce, 1996). The situated evaluation approach assumes that enlarged understandings (by the user) of the innovation might lead to new uses. Changes occur over time and they rarely produce uniform effects especially when the contexts are considered. Prior research on the situated evaluation focused on mainly learning in classrooms (Bruce, Bruce, & Huang, 1997), literacy in network-linked classrooms (Bruce, 1999), and the use of a risk assessment instrument for child abuse (Choksi, 2000). For the study, the situated evaluation approach will examine the processes and outcomes of an innovation, i.e., the interorganizational collaboration and its artifacts from the perspectives of the participants. This approach will enable an indepth understanding of the participants' motivation for particip-

ation, the manner in which the innovation was realized, and the benefits and drawbacks of the multidisciplinary collaboration.

To summarize, the goals for the study were to examine the reasons why the collaboration took place, to analyze the factors, which sustained the participants' engagement, and to describe the learning outcomes for participants of this collaboration.

## Method

### Subjects

Fifteen members of the HelpSource Consortium participated in the study. The group consisted of all 13 current members and two ex-members of the consortium. There were two librarians, three administrators, and ten human services personnel who provided information and referral services to the community. They had attended at least two meetings prior to the interview and had been with the consortium for at least three months. At the time of the interviews, the participants were involved in the consortium an average of 3.17 years. According to Rogers' typology (1995), eight members described themselves as the "early majority" and six described themselves as "early adopters." There was an "innovator" in the group. Overall, the group members were positive in terms of their acceptance of information technology.

### History of the Collaboration

The HelpSource Consortium is a non-profit organization that was set up by a group of information providers, librarians, social workers and health care administrators who were interested in consolidating disparate information sources and existing online directories of human services information in East Central Illinois. The HelpSource Consortium was a partnership among health care providers, such as Carle Clinic Association, Carle Foundation, and Christie Clinic Association; information providers such as, the Family Service Center of Champaign, Senior Services of Champaign County, Comlink, and East Central Illinois Area Agency on Aging; and community agencies, which included Health Alliance Medical Plans, Lincoln Trail Libraries System, National Parent Information (NPIN) Illinois, Provena Covenant Case Management Unit, and the Urbana Free Library. The collaboration is the first comprehensive attempt in Illinois to bring together human service information among multiple counties and information providers on a website. The mission of the HelpSource Consortium is to provide a centralized, comprehensive, and one-stop, easy access guide to human services in East Central Illinois. The goals were to foster collaboration among consortium

members with regard to information about regional human services, to provide well-organized online access to comprehensive information about regional human services to agencies and the public, to provide technical training and assistance to consortium member agencies, and to publicize and build support for HelpSource website (<http://www.helpsource.org>).

Prior to the setting up of the HelpSource website, information on the human services in the Champaign-Urbana area was provided through printed booklets and pamphlets, agencies' websites, and a number of information and referral agencies, such as libraries and established information providers. Some of these directories were focused on providing information within their own geographical area, while others were specialized and tailored towards specific groups of clients in the community.

### Data Collection

Participant observation, face-to-face interviews, and surveys were the primary methods used to gather data. The data were supplemented by minutes of the HelpSource Consortium from 1998-2002, field notes, reports since the inception of HelpSource Consortium, and the experiences of the researcher who participated in the Consortium as a member. Content analysis was used to focus on the dominant and secondary themes of the interviews. A minimum of two in-depth face-to-face, semi-structured interviews was conducted for each participant. Each interview lasted between 45 minutes to an hour. The interview questions focused on understanding the participants' motivation for their involvement in the group, the experiences in the group, impressions of the meetings, and outcomes of the collaboration. Follow-up interviews after the in-depth interviews were conducted either by phone or by email. Interviews were recorded on audiotapes and transcribed verbatim. Written consent was obtained from the participants prior to the interview.

### Reliability and Validity Issues

The following steps were taken to address the consistency and accuracy of the data gathered. (1) A questionnaire was administered at the end of the first interview to determine whether there was any consistency in the ideas expressed in the survey and the interview, and to determine whether there were new issues to be followed up for the second interview. (2) After the pilot study was conducted, some interview and survey questions, which were considered to be "loaded", or those that tended to bias the responses were dropped. (3) The inconsistencies between the two in-depth interviews were clarified further in subsequent follow-up interviews/email with the interviewees (4) Member checking was

conducted with the other members of the group to ensure the validity of the interviews.

## Results

### ***Why did Collaboration take Place?***

There were five themes which accounted for the involvement of participants with the HelpSource collaboration. They were political expediency, sponsor involvement, technical expertise, organization's vested interests, and the commitment of consortium members.

### **Political Expediency**

The participants were initially suspicious the sponsoring agency had wanted to "take over" their directories which they had developed. Unlike the participants in the group who already had developed community directories, the sponsor did not have the history of providing information and referral services nor did they maintain a directory, i.e., they mainly offered financial support for the collaboration. Many of the participating organizations in the collaboration had already carved a niche for themselves and had been funded for their efforts in collating, updating, and maintaining health and human services directory in their communities. However the participants' initial suspicions dissipated after meetings with group members and the representative of the sponsoring agency. The participants believed their input mattered as the representative from the sponsoring agency incorporated their feedback into decisions that were made. For example, when the group was developing the HelpSource website, the members' feedback was crucial in shaping the design and architecture of the website, the name of the collaboration and website, and the design of the logo. Over time, the members felt that they felt a sense of ownership with the website they were jointly developing.

The compendium approach, in which the identities of individual online directories were kept, assured the participants that the intention of the main sponsor was not to take over their directories but to share information and support the development of a central online repository of community health related information and services. The final product was the HelpSource website (<http://www.helpsource.org>) which was a compilation of nine individual directories. This compendium approach was a politically neutral approach which was considered politically necessary and appropriate by all members in designing the website. If the sponsor had attempted to unify the classification system, change the thesarus, alter the manner in which the information had been originally organized in the directories, or change the aesthetics of the organization's information and referral

products, the participants would have construed this as a sign that they had to "give up" their directories. The decision to use a compilation approach was made because the consortium members had a strong sense of proprietary over their information and referral directories. If centralization of these directories in the form of amalgamating and centralizing all the participants' directories using a single unifying structure (eg., single thesarus, identity, and search function) had been attempted, the participants would have rejected the idea.

### **Sponsor Involvement**

The members saw the benefits of being involved with a major health care provider in the community because more resources were made available to them. The foundation arm of the hospital underwrote the costs involved in the development of the website. This included hosting consortium meetings, advertising, hiring of professionals to develop the logo, the design of the website, and providing the resources to sustain the funding for developing the website. This was a welcome change for many of the information providers in the human services who had worked in agencies that did not have a marketing department. The participants saw the advantages being in partnership with the main health care provider in East Central Illinois.

### **Community Network Technical Expertise**

A community network in the Champaign Urbana area, Prairienet, provided the technical expertise to develop the website. Furthermore, Prairienet had a history of working with community organizations, human services agencies, and non-profit organizations that were involved in the consortium. (<http://www.prairienet.org>). Prairienet is a member and donation supported community information network for Champaign-Urbana and the surrounding East Central Illinois region and is offered as a community service by the Graduate School of Library and Information Science at the University of Illinois at Urbana Champaign. Because Prairienet was not affiliated or employed by the sponsoring agency, the organization was seen by participants of the collaboration as a neutral and politically correct choice as the consultant for the project. During the meetings prior to the setting up of the HelpSource website, the Prairienet representative responded to questions on the nuts and bolts of development online directories, control vocabulary, how online directories were maintained, solicited members feedback, listened to alternatives that were presented by the participants and the users, and brought members together to discuss decisions about the HelpSource website. She was careful to explain the technical aspects of web-

site development in a manner that was understood by members who did not have computer expertise and experience. The participants felt involved in the decision-making of the group. This further allayed their fears that the sponsor was “taking over” their directories.

### **Organization’s Vested Interests**

The participants had a vested interest in the collaboration because they believed that the collaboration would enhance the agency’s visibility in the community. The agencies’ long-standing commitment in delivering information and referral services in the community would be further publicized on the Internet as well as to the communities in East Central Illinois. Because the information directories of the participating agencies are available together on the HelpSource website, the participants believed that that the users are more likely to gain access to information about their organization’s services. The increase in visibility on the Internet might lead to more clients working with the agencies and referrals from human service professionals. In the long run, this could translate into the agencies receiving more grants from state and private foundations.

### **Commitment of Group Members**

The participants had personal reasons for the involvement in the collaboration. The librarians had felt a need to represent the end users because the majority of the consortium participants were information providers. The human service professionals believed that the support they had received from consortium members contributed to their becoming interested in the collaboration. The sponsors had a commitment to support and facilitate the development of community information systems. Generally the participants were energized by a sense of purpose to set up a website with the directories available for public access and use. There was a common set of goals that the group had agreed upon, such as an agreement to minimize duplication of directories within the website, to make the information readily available to the community, and to ensure as accurate and regular update of information for the online directories.

### **What Sustained the Collaboration?**

A consistent set of themes emerged from the interviews. The factors, which sustained the collaboration, were anticipated benefits, unanticipated consequences of the collaboration, and composition of the group.

### **Anticipated Benefits**

As discussed earlier, the anticipated benefits related to increased visibility of the participating agencies. The agencies’ involvement with Prairienet led to the improvement and expansion of many of their community directories. For example, apart from the annual print version, an expanded version of the Help-Book directory became available online. The increased contact with Prairienet provided the impetus for agencies to organize their information in a manner which was compatible for use online. By retaining the identities of the directories, the organizations were able to further market themselves in their niche markets. Many of the participants felt that the retention of their directories in their original form had provided them with more opportunities to “brand” their online directories. Although the agencies did not evaluate these claims empirically, the participants felt that the collaboration helped their work, their organizations, and the community.

### **Unanticipated Consequences**

The unanticipated consequences of the collaboration were networking among members, the development of more online directories, opportunities for professional development, ensuring the preservation of online directories, new collaborations, and awareness of the community and community events. Members networked with each other professionally and more frequently turned to each other for assistance in their information and referral work. One of the newer members previously with no knowledge of the workings of a database was helped by the more senior members in the group to use the database and to maintain the directory. When the funding was suspended for one of the online directories, the consortium members successfully negotiated the transfer of the directory to be managed by another organization which had the resources to maintain it.

Because of the consortium’s increased visibility, information professionals from other counties joined the group, which led to more human services information becoming available online. New affiliate directories, such as the Family Resource Directory, Brain Injury Resource Guide, and the Community Resource Directory were developed, enhancing further the utility of the website. “HelpSource Unplugged” enabled caseworkers to download the HelpSource online directories on their computers. This became helpful to caseworkers that needed to use, or provide the information in their work with individuals and families. The members of the consortium, who were primarily information and referral specialists, felt the collaboration had enhanced their awareness of the events taking place in the community and had understood who the different players were in the in-

formation and referral community. Additionally a Spanish version of the online directories, a directory of 800-Illinois human services numbers, and grant opportunities for the human services eventually became available on the website. Professionally, the participation was beneficial because members alerted each other to conferences, talks, and workshops, which were useful to their work. The collaboration resulted in the HelpSource Consortium providing a consolidated portal of human services information in East Central Illinois.

### **Composition of the Consortium**

Because consortium members comprised of professionals with different expertise, members benefited from the multiple perspectives of administrators, librarians, users, social workers, and case managers. These professionals shared their expertise and knowledge about emerging community trends, computers, networking, grants, and experiences in interfacing with the information systems. The consortium members discussed potential changes in federal, state, and local policies that affected the delivery of information and referral services, such as the future statewide implementation of 211, a national dialing code for health and human services, and the availability of grants to sustain the long term collaboration. The consortium members who belonged to other community interest groups updated other professionals about the development of the HelpSource website.

### ***What did the Participants Learn?***

This section will summarize types of knowledge and skills that participants had acquired as a result of their involvement. Because these benefits varied depending on the participant and their roles with the organization, their experience with computers, the level of interest in information technology, and relationships within the group, this section will summarize the qualitative gains in IT knowledge and skills for the different participants. Despite a lack of activities to teach members IT knowledge or skills explicitly, consortium members gained a further understanding of the IT uses through the presentations from the Prairienet consultant, discussions with group members, and from their experiences as information providers. The examples below illustrated some of the learning that took place.

Because some of the members did not have training or experience in managing databases, they benefited from the expertise of more experienced users. Then in 1998, when Anna was asked to manage her agency's databases, she did not know how to operate the system but consortium members provided her the technical expertise and support to learn the pro-

gram from scratch. She learned how to email as well. As she learned the nuts and bolts of managing a database, she became more confident in exploring more efficient ways of organizing the records in the database. She believed that the consistent support from consortium members enabled her to gain confidence to use the program. Kathy, another new member who had joined the consortium with the goal of networking with experienced individuals who were able to help her in her work in managing a database. Because Anna then had already learnt the system, she trained Kathy to use the program. Here was an information provider who was previously a self-proclaimed "novice" but she was now teaching another novice. The friendly and reliable support from more experienced group members facilitated the novices' learning about databases.

The networking opportunities in the collaboration further enhanced interest in the use of information technology among the participants. When one of the consortium members, Rachel, joined the group, she became interested with the Internet and its applications, as a result of being encouraged to take a class one of its members were teaching. Another representative felt that the presentations during the consortium meetings had made him interested in learning hypertext markup language. By having discussions on how to use keywords to effectively search the Internet during the meetings, he became more efficient in using the Internet to search information for his clients. Another participant became more aware of new information sources about the community, professional development workshops, administrative and practice issues of social work professionals, and emerging information needs in the community. The meetings and the discussions made some of the participants realize for the information to be shared on the Internet, the program that they had been using to organize their records had to be compatible with use on the Internet. The participants understood how online directories were setup, maintained and consolidated over time. The participants found the discussions useful to their work as they became sensitized to the micro, mezzo, and macro influences that affected their work as information providers and users. The participation gave consortium members new ideas how to use and locate community and Internet resources more effectively. It gave participants many informal learning opportunities through the discussions among group members, consultations with Prairienet, and networking with community members that enhanced their understanding of the information systems. These included thesaurus management, monitoring of website usage, transferring databases to online use, and the social and economic aspects of technology which included an appreciation of the political undercurrents that shaped the collaboration

and the development of the website, marketing efforts, and the benefits of the consortium as a networking structure. Interestingly, these discussions made human service professionals within the group realize that there was some degree of duplication of information among the directories.

## Discussion

The study showed that a combination of political, socio-economic, and contextual influences shaped the development of the HelpSource website, the first consolidated portal of health and human services information in East Central Illinois. Instead of establishing a single search engine with a standard thesaurus and design, the participants opted for a compendium approach which maintained the distinct identities of the human service directories. This arrangement reflected the economic and political realities of relationships between and among human service organizations within a competitive environment. This case study extends the research on the benefits of the collaboration for participants and their organizations with its unique focus on the factors and processes which led to information and referral health and human service information becoming available online. Apart from the learning opportunities in a multi-disciplinary collaboration, the partnership enabled agencies to pool their resources to address a community need which was to provide centralized access to health and human services information.

The findings of the study support the research on the benefits of collaboration for participants, organizations, and the community (Alter & Hage, 1993; Graham & Barker, 1999; Mattessich & Monsey, 1992; Rosenthal & Mizrahi, 1994). The collaboration helped the organizations pool their resources to accomplish mutual goals and created greater awareness of the community's information needs among the participants. Additionally, the study showed there were contextual reasons which contributed to the success of the collaboration such as support from a local community network, the sensitivity of participants to "ownership" issues, and the subsequent development of products, such as downloadable directories, pocket directories which further enhanced website usage. The participating organizations gained recognition from their constituents as a result of their increased visibility. This study suggested that the benefits of the partnership and the unanticipated benefits sustained the collaboration. Because of the future statewide implementation of 211 in Illinois, emerging social problems and the subsequent need for human services information, and changing technology, the collaboration continued to stay relevant in meeting the needs of its members. The consortium

continues to remain active today, eight years after the start date of the collaboration.

The collaboration transcended existing differences of the organizations in terms of resources and manpower. The formal and informal exchange of information, together with the members' support enabled the participating members to learn more about the community's information needs and to assimilate new practices into their work. The participants made qualitative gains in their understanding of how technology can be used to address the information needs of its users and the community. Their enhanced technology use was the result of participating in consortium meetings, sub-committees, and interactions with novice users and more experienced members of the group. To a certain extent, their participation in the collaboration ameliorated the organizational divide among participants in the group (Kirschenbaum & Kunamneni, 2001; Princeton Survey Research Associates, 2001; Robertson, 2001). Although there was no resource redistribution among the agencies, the participants became more proficient administrators of the online directories they were managing as a result of the support provided by Prairienet, the community of users, and administrators.

According to Lave and Wenger (1991) the "practices of the community" created the potential "curriculum" for learning. There were different levels of support at the formal and informal level which enabled the participants to become more proficient users of information technology. These ranged from didactic instructions by more experienced users of technology to incidental learning opportunities from member interactions at group meetings. An analysis of the learning mechanisms indicated that group expectations, the repeated use of technology, observational learning, facilitation, mentoring, and expert tutelage had enabled participants to become more competent users of technology (Kok, 2006).

Based on the interviews, a list of best practices that enabled the collaboration was identified. These include bringing competitors to the same table to focus on a common goal of addressing information gaps in the community, building relationships and trust among competitors during the initial phase of the collaboration, concerted efforts in including end users, information providers and sponsors, providing opportunities to reflect on the anticipated and unintended outcomes, and including a focus on community, state and federal policies that affect information and referral.

## Conclusion

This study details the collaboration among a group of information and referral specialists and the involve-

ment of competing health care providers in addressing the information needs of the community in East Central Illinois. The situated evaluation approach documented unique outcomes for participants and their agencies. Oftentimes we assume uniform effects of information technology, but the social and political context mitigated the implementation and outcomes for individual members.

The generalizability of the findings is limited because the study occurred under unique circumstances in a time when the Internet was starting to become more pervasive in the human services and when human service providers did not receive formal training to manage their online directories. The external validity of the study was affected the characteristics of the sample. The participants of the HelpSource Consortium were mainly administrators rather than

clinicians who were involved in direct work with people. Another threat to external validity was the participants had belonged to other community alliances and coalitions which suggested that interorganizational alliances facilitated the collaboration (Foster-Fishman, Salem, Allen, & Fahrbach, 2001).

Future longitudinal research should examine the diffusion of IT knowledge and skills between experts and novices and among novices themselves. The exchange would be helpful in documenting how knowledge is transformed into skills that enable the participants to discover unique uses of the technology. In the long run, they may use their new found understanding to address specific problems in the organization and the community. These processes might ameliorate the organizational divide.

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## About the Author

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Dr. Adrian Kok is an Assistant Professor from the Graduate School of Social Work, Dominican University in River Forest, Illinois. He obtained his PhD from the School of Social Work at University of Illinois at Urbana Champaign. His research has focused on diverse topics in autism, HIV sexual risk, and most recently, learning in community technology groups. Dr. Adrian Kok is interested in developing educational opportunities for service-learning to promote multi-disciplinary collaboration between social work and other health care professionals. His current interests focuses on evaluating programs in teaching older adults how to use computers and developing approaches which enhance technology learning and use among older adults.

# Our Mission

Campaign for a Community Benefits Agreement and the Establishment of a Digital Excellence Trust

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Chicago Digital Access Alliance

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# Speaking out on the Digital Divide (Transcript)

*Submitted by dex on Wed, 02/28/2007 - 08:44.*

### **1. Is the Digital Divide an issue for you or your organization here in Chicago?**

It's central to our mission – but we frame it from a positive angle: the Chicago we want is a thriving global city –each and every community area... and digital literacy, access and equity is the norm. That's our mission. We're very serious about surmounting the DD in it's many facets... literacy without access would be meaningless and vice versa. Equity is about social justice and quality of life for everyone. That's what has to be achieved to overcome the divide.

But defining the divide isn't so simple ... we have had a top down policy history that lags behind grassroots community needs. It takes

time for funders to realize its more than equipment, and basic training and connectivity.

Grants and support on each of these fronts conceals the fact that the technology is dynamic – it is disruptive of society and our many hierarchies – and any solution needs to keep pace with the changes. Most institutions and many leaders have their head in the sand and unfortunately don't see the opportunities presented by technological change.

But we don't want technology for technology's sake ... that's fetishism and that distracts us from building the Chicago we want.

We need to go beyond basic consumption of content and services mediated by the network. (The Network is the Computer). The digital literacy and access I want to see for Chicagoans is a digital and media fluency of the highest order: I want to see us using collaborative tools, producing local and personal media/content and producing tools to solve our own problems in our communities and the institutions that serve them ... empowering us to remake those institutions to suit the needs of the people.

The core of the Internet's design has something truly democratic ... we have to embrace that if we are serious about what we value in our civic traditions.

## **2. How does the Digital Divide affect or impact your employees, children, students, family, or organization?**

Community-based NPOs, and Community Leaders in general don't make effective use of technology... this points to several things – first the dynamic, multifaceted aspects of the divide. It's much more than whether you can turn on a computer and get on the Net ... the question is whether you are comfortable using new tools and actively embracing new tools – especially collaborative tools.

Second, in general ... It's very important that community leaders appreciate this and that we support them so that they can better serve their communities.

I've seen this time and again in the CBO/NPO sector ... community based organizations aren't very far ahead of the populations they serve, when it comes to the divide. Plenty of NPOs buy what a vendor is selling and don't understand what they have bought nor how to make effective use of it nor how much it really costs to integrate technology into their mission and get their staff up to speed, and generally they don't have much by way of resources to do this right anyway. That's why we need to be cultivating community technologists ... we need homegrown technologists in our communities.

### **3. What steps, if any, do you feel Chicago should take to close the Digital Divide?**

Baseline: how deep is the divide in Chicago? Who knows? How would you measure it exactly? And I don't mean in a trivial sense of number of times people have access to or make use of a computer or the Internet in a given week ... also I don't want to see us relying on generic national data samples – we need to know where Chicagoans stand with respect to Digital Literacy and Access ... and we have to define Digital Literacy as a higher process ... not just look to skill sets as proxy ... i.e. passing of an Office Applications class or cert is not enough.... And we shouldn't push in that direction.

Set some goals... make them ambitious. If we establish a hierarchy of digital competence and literacy and if we had a real understanding of where Chicagoans are ... we ought to move mountains to move the majority of Chicagoans up that ladder.

And how are you going to implement this, you may ask? If we're smart we'll start in each of the communities and network together the existing resources. We'll break thru some of the barriers that preclude cooperation among some of the institutions and between community and institutions. This opens up the structure to some real change ... and that's the scary part. But as many recognize – it will be worse for all if we keep going as we have been.

### **4. Do any of the following areas strike you as**

**significant and important for Chicago to consider?**

Education: Providing education in the adoption and use of technology

Networks – Assure access to physical technology infrastructure (e.g. affordable Internet access).

Software – Availability/affordable of software

Hardware - Availability/affordable of hardware and equipment

Mindsets – Efforts to overcome mental mindsets that limit

I'll add one that's not encompassed in the above, right off the bat: forgive the neologism: in a word ...info-structure. I said before this is a multifaceted issue... sometimes we miss important facets. Just 'cause we have a list doesn't mean we're being exhaustive.

What does this mean? Attention to the structuring, presentation and usability of Information ... not in terms of customers or clients or marketing but in terms of utility and navigability for the end user ... content and design that is relevant and intuitive. We need portals and public information resources with appropriate investments for maintenance and updating. It wouldn't hurt to rely upon experts in the field of Community Informatics and Library Information Science –we have some leaders in that field right here in Illinois.

But I would like to touch upon the several areas you listed ...

At least... mindsets... so many aspects to this. People have to be awakened to the possible ... and they have to see these tools as relevant to their life. Each alone is a tall order.

Certainly many feel a discomfort with the unfamiliar ... and there are also expectations and disappointments with regard to technology.

But what is most jarring is the transformation in styles of work that is possible and necessary.

Even the phrase the “network is the computer” requires a shift of mindset. And as we go to the heart of what the Internet is about – we come to see that our Freedom to Connect is important ... we are talking about something fundamental – communication – we need to be capable of exercising our communicational skills and rights in an information age democratic society. The question of mindset is how we inspire people to “get with it”.

On software...I can say with confidence that there are robust open source solutions for just about everything you would want or need to do with a computer .. and often it will run on older equipment better than anything else you can get running on that equipment. This means the cost isn't in licensing software, it is where it should be: training and support of the people using the technology – so they can get done what they want and need to!

**5. Do any of these areas strike you as particularly important points of focus for closing the Digital Divide here in Chicago?**

We won't close it at all if we limit our focus to a kindergarten conception of digital literacy. As important as first steps and first taste of access is... we need a path to advanced digital and media literacy. We have to support a network of organizations operating at several levels, and connected in such a way as to support each other... if it's training there needs to be a ladder or lattice of training options.

I'll say it again ... we have to be focused on bringing people to a higher level of digital fluency ... where people can make use of the advanced tools of Web 2.0 ... which some may regard as hype, and there is some hype around it ... but the sophistication of the tools and the sophistication of the notion of collaboration is not to be dismissed. And if Chicago wants to be a leader in the digital era then more of our people need to be productive and innovative with technology tools.

So, in short, a training and support network that allows for development of advanced skill sets and judgment ... open the door to collaboration, innovation and especially entrepreneurship.

How many workforce development programs contemplate the notion of Entrepreneurship?

## 6. What actions would you recommend be taken to close the Digital Divide?

You don't have enough tape...

## 7. What can or should you or your organization do to help close the Digital Divide?

We're a network. And that means we have to promote a network/environment ... facilitating and connecting Resources, Interests, and Talents ...

Both Network and Community Level engagement is necessary ... and that's what we're trying to promote.

Michael Maranda  
Executive Director  
CTCNet Chicago  
Co-Convenor  
Chicago Digital Access Alliance

Digital Literacy, Access and Opportunity for Every Community

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**Chicago  
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Benefits Cam...**

**HOW CONCENTRATED POVERTY  
MATTERS FOR THE “DIGITAL DIVIDE”:**

**MOTIVATION, SOCIAL NETWORKS, AND INSTITUTIONS**

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ABSTRACT: Building on a national study that showed that concentrated poverty matters for the “digital divide,” this research compares information technology use at the neighborhood level to better understand the relative role of social networks and institution. To investigate local conditions, we use a 2005 random digit-dialed survey of respondents in the three cities in Northeast Ohio that vary in racial composition in income. We analyze the results using regression models that include contextual “buffers” that create a unique geography for each respondent within a half-kilometer radius. Despite lower rates of home or work Internet access in areas of concentrated poverty, residents demonstrate motivation to go online wherever they can. Respondents who live in areas with a high percentage of African-Americans or college graduates are more likely to make the effort to go online even if they lack Internet or home access. At the neighborhood level, race and education may influence the development of supportive social networks and resources for technology use.

What experiences do residents of poor urban communities have with information technology – what are the barriers they confront and the resources that they use for participating in an increasingly information-based society? Recent national research has highlighted the role of concentrated poverty in reducing information technology use, and this research endeavors to better understand processes at the neighborhood level by examining the effects of institutions and social networks.

African-Americans (and in some cases, Latinos) are more even more likely than similarly-situated whites to express positive attitudes toward information technology, and yet they have lower rates of access, use, and self-reported skill (Mossberger, Tolbert and Stansbury

2003). But, once we control for characteristics of high-poverty communities using multi-level models, an individual's race is no longer significant for predicting information technology access or use, although Latino ethnicity is still significant (Mossberger, Tolbert and Gilbert 2006). Lower rates of access and use by African-Americans can be explained, therefore, by racial segregation and the greater likelihood of residence in high-poverty neighborhoods.

While national studies have yielded generalizable results on the importance of “place,” more research is needed to understand *how* place matters. This study builds on the prior national research by using a random-sample telephone survey conducted in three Northeast Ohio communities in 2005: East Cleveland, which is majority African-American and characterized by concentrated poverty throughout the city; Youngstown, which is a larger, poor, and racially-mixed city; and Shaker Heights, which is an affluent Cleveland suburb that is racially diverse. This sample allows us to explore race and other community characteristics for their influence on respondent attitudes and behavior, including residents' perceptions and use of public institutions. By focusing on the community level, we can explore various contextual factors for each individual – including distance to the neighborhood library, and socio-economic and demographic factors within a half-mile radius of each respondent. In order to best represent the context of each individual, we created a series of buffers around each respondent's place of residence. The buffered variables allow us to build models that take the effects of place into account even more accurately than census tracts or block groups.

We find that individuals in majority African-American neighborhoods who lack Internet access at home or at work are more likely than other respondents without access to go online – at schools, at libraries, and the homes of friends or relatives. Segregated areas of concentrated poverty are different in this regard from other low-income neighborhoods. There is clear effort

and motivation to go online on the part of these individuals, but the infrequent use that results may be a barrier to gaining familiarity and skill with technology. The availability of public access is therefore an institutional element that is critical in these communities, but it is also supported by social networks. The educational attainment of a community has an even greater influence on technology use than the racial composition of a neighborhood, and poor communities are clearly still at a disadvantage, despite some of the optimistic results we discover.

### **PRIOR RESEARCH: DIGITAL INEQUALITY, RACE, AND POVERTY OF PLACE**

The term “digital divide” refers to systematic disparities in information technology access and use based on age, income, education, race, and ethnicity (U.S. Department of Commerce 2002; Norris 2001). A number of reports using descriptive statistics have demonstrated that African-Americans and Latinos have lower rates of technology access and use than white Americans (e.g. U.S. Department of Commerce 2002 and 2004), and these differences are statistically significant even when we control for income, education, and other individual-level factors (Mossberger, Tolbert, and Stansbury 2003; Fairlie 2004). African-Americans and Latinos are also statistically less likely than white respondents to report that they have the skills they need to use computers and the Internet, controlling for other factors (Mossberger, Tolbert and Stansbury 2003).

But, the effects of race and ethnicity are contradictory. African-Americans, and to a lesser extent, Latinos, are even *more* likely than similarly-situated whites to express positive attitudes toward information technology. Despite lower rates of access and skill, African-Americans are also among those who are most likely to search for a job online or to take an online class, all else equal (Mossberger, Tolbert and Stansbury 2003; U.S. Department of

Commerce 2002). Finally, African-Americans are more likely than similarly-situated whites to report willingness to use public access for computers or the Internet, or to learn new technology skills in a variety of ways. Survey responses show the conviction among African-Americans that technology is important is rooted in the belief that it is a path to economic opportunity (Mossberger, Tolbert and Stansbury 2003). Among those who are currently offline, African-Americans are more likely to say that they expect to use the Internet in the future (Lenhart 2003). How, then, can these more positive attitudes be reconciled with persistently lower rates of access, use, and skill? Even as the universe of Internet users has expanded in recent years, African-Americans (Madden 2006) and Latinos (U.S. Department of Commerce 2004) continue to lag behind in access and use.

The racial dimension of the “digital divide” is an echo of the unequal opportunities available in poor neighborhoods, especially areas characterized by concentrated poverty and racial segregation. African-Americans and Latinos are more likely than whites to live in such neighborhoods. Mossberger, Tolbert and Gilbert (2006) found that while residence in a poor community diminishes technology access and use for all Americans, that these effects are magnified for African-Americans living in high-poverty areas. Using hierarchical linear modeling to compare individual-level and community-level factors in a national random sample, they found that the median income and educational attainment of the zip code had a statistically significant effect on technology access and use. Controlling for these “place” effects, race at the individual level no longer matters. Concentrated poverty does not entirely explain differences between Latinos and other Americans. Both place effects *and* ethnicity are significant predictors of lower rates of access and use for Latinos (Mossberger, Tolbert and Gilbert 2006).

The cost of limited technology use and skill may be restricted mobility into well-paying jobs (Krueger 1993; Autor, Katz and Krueger 1998; Goss and Phillips 2002). Internet use encourages inclusion in the political community, including higher levels of voting (Bimber 2003; Tolbert and McNeal 2003; Graf and Darr 2004). The Internet can also connect individuals to crucial services. The use of the web for health-related information has grown in recent years (Fox and Fallows 2003). E-government is one of the fastest-growing activities online, and virtually all governments at every level have some presence online (Larsen and Rainie 2002; Norris, Fletcher and Holden 2001; West 2005). As residents of poor communities are more likely to depend upon public services and to suffer from health problems, the need to find information online may be higher still in these communities.

Those who are unable to access and use the Internet regularly and effectively bear higher information costs for political participation, government services, and health, and are further disadvantaged in the labor market. Beyond these individual costs are implications for local economic development, and the human capital available to areas to attract businesses across many industries that increasingly rely upon the use of information technology (Litan and Rivlin 2002).

### **THE IMPACT OF PLACE: SOCIAL NETWORKS AND INSTITUTIONS**

Concentrated poverty, where 40 percent or more of the population live below the poverty level, is a primarily urban phenomenon and it is coupled with racial segregation. A number of scholars have argued that spatial concentration magnifies the disadvantages of poverty (Wilson 1987 and 1996; Quane and Rankin 1998; Massey and Denton 1993, Orfield and Lee 2005; Jargowsky 1997). While the 2000 census marked a modest reversal in the rapid growth of concentrated poverty, more than 8 million Americans continue to live in very poor urban

neighborhoods such as the ones we examine in East Cleveland and parts of Youngstown (Pettit and Kingsley 2003, Jargowsky 2003). We are most interested, therefore, in further exploring the conditions in poor urban communities that might limit or enhance opportunities for learning about and using information technology.

What are the possible causes for the impact of poor communities on technology use, especially those characterized by racial segregation and concentrated poverty? Opportunities for learning about or using technology may be more constrained in poor neighborhoods, including formal and informal learning through social networks and neighborhood institutions.

Social networks may encourage technology use through peer influences, through the provision of access, and through informal learning and technical support. The potential for gaining access and knowledge through personal networks is evidenced by social use of computers and the Internet. Roughly one-quarter of American adults report using computers or the Internet at the homes of family or friends (Mossberger, Tolbert and Stansbury 2003). In poor communities, where home access is more limited, social networks may be less likely to provide informal support systems.

It is also important to understand whether public institutions such as schools and libraries are filling a gap by providing access and experience with technology, especially in communities where many homes lack computers or Internet connections. Poor communities have gained external resources to support technology use, and there have been some gains in terms of public access. The E-rate program, which was created by the passage of the Telecommunications Act of 1996, was established as a \$2.25 billion annual fund to provide discounts to schools and libraries for connections to the Internet. As a result of the E-rate program, nearly all schools in the United States have Internet access (NCES 2004b). Libraries have been an important point of

public access for computers and the Internet, as well as potential sources for training and assistance in locating information online. Studies show that nearly 99 percent of public libraries now feature free Internet access (Gates Foundation 2005; Bertot, McClure and Jaeger 2005). Yet, libraries in high-poverty urban areas also report that they “cannot consistently meet the demand for public access workstations” (Bertot, McClure and Jaeger 2005, 2). Surveys conducted by the University of Washington underscored the importance of libraries for maintaining access for all, as 37 percent of patrons in high-poverty areas had no other Internet access. About a third of library patrons use public access computers to learn or practice computer skills (Gates Foundation 2004). What role, then, do social networks and institutions such as libraries and schools play in communities in Northeast Ohio?

### **THREE NORTHEAST OHIO COMMUNITIES**

The three cities selected for comparison represent a socio-economic continuum. East Cleveland and Shaker Heights are both inner-ring Cleveland suburbs with a similar population size (a little under 30,000), but East Cleveland is one of the poorest municipalities in the state, and Shaker Heights is one of the wealthiest. Because Youngstown is larger, it is more economically diverse than East Cleveland, and is more racially diverse as well.

East Cleveland is a majority-African American community directly adjacent to the east side of the City of Cleveland. With a city-wide poverty rate of 32 percent, East Cleveland has many neighborhoods that fit the 40 percent threshold for concentrated poverty. Like many other communities characterized by this level of poverty, it is also highly racially segregated. The population of East Cleveland is 93.4 percent African-American, according to the 2000 census.

Youngstown also has a high poverty rate, about 25 percent city-wide. There are areas of concentrated poverty throughout the city, but there is more variation overall. The median

household income of \$24,201 is about \$3,700 higher than in East Cleveland. Non-Hispanic whites comprise about 51 percent of the population and African-Americans about 44 percent. Approximately 5 percent of Youngstown residents are Latino.

Shaker Heights is a racially diverse city, with a population that is about 60 percent white, 34 percent African-American, and 3 percent Asian-American. But, Shaker Heights stands in stark contrast to the other two communities economically. The poverty rate is only 7 percent, and median household income is \$64,000 – more than three times the median income in East Cleveland and over 2.5 times the median income in Youngstown. This is also more than 50 percent higher than the median household income for the state of Ohio, which is about \$40,000.

Because of the significance of education for technology use, it is noteworthy to compare educational attainment in the three communities. The percentage of adults age 25 and over who are high school graduates is similar for East Cleveland (69%) and Youngstown (73%). The small percentage of the population that has a bachelor's degree or more is also similar – 8.5 percent for East Cleveland and 9.7 percent for Youngstown. Shaker Heights has an almost universal rate of high school graduation (95 percent of residents), and 62 percent of the population has at least a 4-year college degree.

We have selected one smaller city that closely resembles the criteria for concentrated poverty and racial segregation, and another, larger poor city that contains many areas of concentrated poverty, but is more economically and racially varied. Cities were selected to represent two somewhat contrasting poor areas and a comparison area that is economically more affluent, but also racially diverse. By comparing very different communities that all have substantial populations of African-Americans (of at least 40 percent), we can isolate the effects of living in impoverished, racially-segregated areas of concentrated poverty from the effects of

race at the individual level. We can thus explore prior findings that African-Americans in middle-class neighborhoods are at least as likely to have home access to technology as similarly-situated whites (Mossberger, Tolbert and Gilbert 2006). Unfortunately, the percentage of Latinos in these cities is too small to draw any meaningful conclusions about this group.

First, we examine patterns of access and use across the three communities using descriptive statistics. We further analyze these results using multivariate analysis that introduces contextual as well as individual variables.

### **DESCRIPTIVE STATISTICS: PATTERNS OF ACCESS AND USE**

Comparing cities, there are clear differences in information technology use.<sup>1</sup> When asked “Do you ever use the Internet, for any reason?,” only 52 percent of respondents in East Cleveland and 51 percent in Youngstown answered yes, in comparison with 79 percent of the respondents in Shaker Heights. Responses for computer use were similar. This compares to national surveys conducted by the Pew Internet and American Life Project from around the same time period (summer 2005) that reported that 68 percent of Americans had ever used the Internet, at least occasionally (Fox 2005).

#### **TABLE 1 ABOUT HERE**

Even among those who did respond that they have used the Internet, there are contrasts in the places where they use computers or go online, and these differences have implications for frequency of access and opportunities to develop skills. Only 39 percent of East Cleveland residents had Internet access at home, compared to 46 percent of Youngstown residents and 76

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<sup>1</sup> This section presents results from the random digit-dialed survey conducted June-August 2005 in the three selected cities. Survey methods are described in more detail at the beginning of the section on the multivariate analysis. Here, we document patterns of access and use for adults, with some revealing findings in the poorest neighborhoods.

percent of Shaker Heights respondents (nearly double the percentage in East Cleveland).

Although only 39 percent of East Cleveland residents have Internet access at home, 52 percent of them have still gone online, indicating that for at least 13 percent of these respondents home is not the primary place of use. This differs markedly from the other cities. There are only 5 percent more Youngstown residents and 3 percent more Shaker Heights residents who report being online in comparison with the percentage of residents who have Internet connections at home.

Table 2 below shows a greater tendency among East Cleveland residents to rely on public access and networks of friends and relatives. We asked respondents to name the three most frequent places where they used computers in the past month, and then asked how often they had used them in that place in the past month.<sup>2</sup>

#### **TABLE 2 ABOUT HERE**

While home is the most frequent place of use for computers and the Internet for all cities, work is the most frequent place of use for a much higher percentage of residents in affluent Shaker Heights. Libraries (or community centers), schools, and friends or relatives are the *most frequent place of use* for a higher percentage of East Cleveland residents; nearly 20 percent of East Clevelanders who use technology access both computers and the Internet most frequently *outside home or work*. This compares with much smaller percentages in the other two cities.

A higher proportion of East Cleveland residents rely upon their social networks for technology use, as well as upon public access. Nine percent of the respondents who had used the Internet in East Cleveland said that the place where they had used it most frequently in the past

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<sup>2</sup> For frequency of use at each place, respondents were given the choices “1-10 times, 11-30 times, 31-100 times, more than 100 times.”

month was at the homes of friends or relatives, in comparison with 6 percent in Youngstown and 2 percent in Shaker Heights. Social networks may play a more important role in technology use in low-income communities, according to our data. This is consistent with studies of “kinship,” lending, and resource-sharing in low-income communities (Stack 1973). Still, it is unlikely that personal networks alone can fulfill the need for technology use, and while public access has made important contributions, the limits of technology use in poor communities are apparent.

Because home and work are the most common places for frequent access, this means that East Cleveland residents are likely to use computers and the Internet much less regularly, and may not develop skills for information use as well as technical skills. In East Cleveland, 31 percent of Internet users went online 10 times or less in the past month in the place where they used the Internet most often, in comparison to 20 percent in Youngstown and 15 percent in Shaker Heights.

Reasons for using public access technology also differed across the three cities. For East Clevelanders, the most common reason for using public access sites was the lack of a home computer – 24.5 percent in East Cleveland, versus 14.8 percent in Youngstown and 10.6 percent in Shaker Heights. In the other two cities, the most common reason was convenience.

Overall, East Cleveland stands out when we compare cities. But, Table 3 below shows that respondents living in census tracts with poverty rates of 30 percent or more in Youngstown have higher rates of Internet use outside of home or work than in Youngstown as a whole. Although respondents in high-poverty areas in East Cleveland show somewhat higher rates of use outside home and work (23 percent) than similar neighborhoods in Youngstown (18 percent), the high-poverty neighborhoods outrank their cities in use outside home and work in both instances. This indicates what may be a more general trend, in other very poor communities.

### **TABLE 3 ABOUT HERE**

Because concentrated poverty has traditionally been associated with racial segregation as well, we examined the racial composition of the high-poverty areas in the study. Areas with poverty rates of 30% or more in Youngstown were 66.2 percent African-American; 93.5 percent African-American in East Cleveland; and 91.0 percent African-American in Shaker Heights.<sup>3</sup> This fits with previous findings on the positive attitudes toward technology expressed by African-Americans. Residents of poor, predominantly African-American communities believe that information technology is important, and make efforts to use the Internet despite lacking a regular source of access.

Next, we turn to multivariate analysis to explore the individual and contextual factors that explain higher rates of use. Using multivariate controls, we can discover whether living in a high-poverty and predominantly African-American neighborhood is significant for predicting Internet use in places other than home or work; or whether other factors better explain these patterns.

### **MULTIVARIATE ANALYSIS: WHAT DETERMINES HIGH INTERNET USE OUTSIDE HOME AND WORK?**

Based on the literature, we hypothesize that neighborhood characteristics matter in patterns of technology use. Three primary hypotheses structure this research: 1) We expect that individuals residing in areas with higher income and education will use the Internet more than individuals residing in areas with resource-poor socioeconomic characteristics. 2) We also hypothesize that individuals who do not have Internet access at home or work will use technology more when residing closer to a public access site. Distance to the closest public

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<sup>3</sup> While Shaker Heights is an extraordinarily affluent community, there are some small, poor neighborhoods on the city's boundaries.

library from a respondent's home is used to measure proximity to public access. In each community in the sample, libraries are the primary and only consistent public access sites. 3) Finally, we hypothesize that individuals living in communities with a high proportion of African-Americans will use technology outside home and work more than individuals residing in more heterogeneous communities. Prior research at the zip code level (Mossberger, Tolbert and Gilbert 2006) shows that disparities among African-Americans are due to place effects of segregation and concentrated poverty rather than an individual's race alone. Yet, the descriptive data here suggest a positive impact for technology use *when we are considering those individuals who lack regular access*. Individuals who are poor and living in high-poverty areas may lack frequent access, but are making efforts to go online nonetheless.

### **Survey Data**

These hypotheses are explored by using survey data merged with data from the 2000 census. For each respondent in the survey we recorded the location of their residence, which was then used to create contextual variables for each respondent. This environmental data is used to measure socioeconomic context and distance to public libraries.

The survey used in our analysis, the 2005 Internet Usage Poll, was conducted for the researchers by the Center for Policy Studies, a division of the Institute for Health and Social Policy at the University of Akron.<sup>4</sup> Households in Youngstown, East Cleveland and Shaker Heights comprised the sampling frame. The cooperation rate for the survey was 28 percent,

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<sup>4</sup> Interviewing was conducted using Computer Assisted Telephone Interviewing technology, which improves the context of the interviewing process itself. In addition, by virtue of the use of computers, data is captured immediately. This facility permits evaluation of the validity of incoming input and reflects in literal format the selected responses entered by the interviewer, there is rigorous quality control and data validation immediately upon entry. Also, a quality control system, consisting of silent monitoring protocols and dedicated monitors, ensures the collection of high quality data.

which approximates typical response rates for national telephone surveys.<sup>5</sup> Federal data show that telephone service now reaches 94 percent of the population (U.S. Department of Commerce 1995), so telephone surveys are a reasonable methodology for obtaining sample data even in low-income or racially isolated communities.<sup>6</sup>

Because the survey targeted three cities in Northeast Ohio which are relatively dichotomous in their racial composition (white and African American), the sample included a very small proportion of any other racial and ethnic minorities. Of the respondents,<sup>7</sup> 48.5 percent were white non-Hispanic, 51 percent were African-American, .5 percent Asian-American and there are no Latinos in the sample.<sup>8</sup> Thus, the 51 percent African-Americans sample population is significantly greater compared to the national average of 12.3 percent of the U.S. population in the 2000 census. Thirty-two percent of the sample had household incomes below \$18,000, allowing accurate inferences to low-income Americans as a whole. Cities were selected to represent two somewhat contrasting poor areas and a comparison area that is economically more affluent, but also racially diverse.

A binary dependent variable is analyzed to examine the hypotheses. In the each model, the dependent variable is binary --“Do you use the Internet?”--coded 1 for yes, and 0 for no. We estimate a logistic linear regression with a binomial distribution for the entire sample using individual-level variables only. Next we include contextual factors that control for

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<sup>5</sup> See, for example, the January 2006 report from the Pew Internet and American Life Project, “The Strength of Internet Ties” (Boase et al. 2006). The response rates for the two random-digit surveys used in the report and conducted by Princeton Survey Research Associates International were 35% and 30%.

<sup>6</sup>The samples for the research were generated by a nationally-known supplier: Survey Sampling, Incorporated of Fairfield, Connecticut. Using a Random Digit Dialing protocol, the initial sampling procedures generated a representative sample of each of the areas to be sampled. In addition, further sample screening for disconnects was conducted in order to provide more accurate and efficient samples. Included in this sample were both listed and unlisted household telephone numbers. Each household was given an introduction explaining the purpose of the survey. The respondent from each household was chosen at random, ensuring a representative sample of the population. The survey instrument was tested prior to the interviewing phase. The interviewing process took nearly two months, beginning June 15, 2005 and ending August 12, 2005.

<sup>7</sup> A total of 962 interviews were completed with 300 respondents in East Cleveland, 360 in Youngstown, and 302 in Shaker Heights.

<sup>8</sup> Respondents were coded 1 in the mutually exclusive category, African-American, with all others coded 0 as the reference group.

socioeconomic characteristics of the respondent's community as well as distance to the closest technology public access site (or public library) in the three communities. Finally, we estimate the same logistic models with only individual, as well as individual and contextual variables using only the sub-sample of respondents who do not have access to the Internet at home or work. This sub-sample allows us to further probe the use of the Internet by individuals who do not possess readily available access to the Internet in their daily lives at work or home.

***Buffered Contextual Variables: Creating a Unique Geography for Each Respondent***

Explanatory variables measure individual-level demographic factors, as well as geographic characteristics of the respondent's community (See Appendix Table 1 for variable descriptions). Most of the contextual information that we used was available from the United States Census Bureau, Summary File 3 series. This information is ordinarily aggregated at the block group level. Block group level information, however, does not account for location within the block group. A respondent located on the block group boundary will experience a different neighborhood context than a respondent located at the centroid of the block group. In order to best represent the context of each individual, we first determined the geographical location of the respondent, using an address matching procedure. From these locations, we created a series of buffers around each respondent's place of residence (see figure 1). These buffers could be of any radius, and we developed buffers of both one kilometer and a half kilometer in radius. In the end, we decided to utilize the half kilometer buffers as a way to determine a respondent's more immediate neighborhood environment. The creation of a unique geography for each respondent eliminates the need for hierarchical linear modeling.

**FIGURE 1 ABOUT HERE**

Since each buffer contained portions of several surrounding block groups, we calculated the attributes for each buffer by employing the assumption that the proportion of a particular attribute from each of the surrounding block groups was equivalent to the proportion of the block group's area contained within the buffer. For example, if a buffer covered 30 percent of a block group and that block group contained 40 college graduates, then we would allocate 30 percent of 40, or twelve graduates, to that buffer. The sum of these proportions can then be aggregated to equal the proportion of college graduates within each buffer. Because each respondent had a unique residential location, there were as many buffers as there were respondents. The buffered variables allow us to build models that take the effects of place into account even more accurately than census tracts or block groups. Moreover, because the buffers create a unique context for each individual in the sample, there is no need to use multi-level methods (such as hierarchical linear modeling) to correct for the possibility of multiple respondents within each census tract or block group.

In this study, contextual variables may represent the character of social networks and resources in the respondent's immediate environment. As previous research has shown that African-Americans have positive attitudes toward technology, but less access and skill, living in a predominantly African-American community could either encourage technology use because of positive attitudes, or discourage it because of more limited experience with technology within social networks (or public institutions such as schools) (Mossberger, Tolbert and Stansbury 2003; Mossberger, Tolbert and Gilbert 2006). Because the descriptive statistics presented above show that high-poverty areas and heavily African-American neighborhoods seem to be associated with high rates of technology use outside the home, we expect that predominantly

African-American neighborhoods have social networks that encourage technology use. We measure racial composition of the respondent's environment by the percent African-American population within a radius of one half kilometer of the respondent's residence. Socioeconomic context is measured by the percentage of the population with a college degree and average household income within a radius of one-half kilometer of the respondent's residence. We utilize average household income because it provides more continuous variation than poverty rates. We use educational attainment, or the percentage of college graduates within a half-kilometer radius, as a measure of the educational climate in the respondent's neighborhood. Educational attainment and income were found to be significant contextual variables at the zip code level in a previous national study (Mossberger, Tolbert and Gilbert 2006). Finally, the distance to a library is included to measure convenient use of the Internet at a public site.

### ***Other Variables***

Control variables measure individual-level attributes of the respondents and were included to measure income, education, race, gender, and age. These are traditional demographic variables used in prior "digital divide" research, and we expect that factors other than gender will be significant. Another variable included is whether or not there are children present in the household. Some descriptive studies have shown that households with children have higher rates of home access (Lenhart 2003). We also expect that this variable could encourage use outside the home, as parents without home access may accompany children to public access sites. Binary variables measure gender, race, and children in the household. For race, white non-Hispanics are the reference or left-out group; for gender, women are the reference group. Households with children are coded 1, and 0 otherwise. Education is measured on a five-point scale with responses ranging from 1= less than a high school degree to 5=

postgraduate work. Age is recorded in years. Income is measured on a five-point scale with responses ranging from 1 =<\$18,000 to 5 = over \$72,000.

Binary logistic regression is used to explore the impact of socioeconomic characteristics on an individual's Internet use. The baseline model equation with only individual attributes is:

$$\dot{Y}(\text{Internet Usage}) = \alpha + \beta_1(\text{African American}) + \beta_2(\text{Income}) + \beta_3(\text{Education}) + \beta_4(\text{Age}) + \beta_5(\text{Male}) + \beta_6(\text{Parent}) + \varepsilon$$

Binary logistic regression is then utilized to examine the effect of individual and neighborhood contextual characteristics on an individual's Internet use. The model equation employed is:

$$\dot{Y}(\text{Internet Usage}) = \alpha + \beta_1(\text{African American}) + \beta_2(\text{Income}) + \beta_3(\text{Education}) + \beta_4(\text{Age}) + \beta_5(\text{Male}) + \beta_6(\text{Parent}) + \beta_7(\text{Percent African American}) + \beta_8(\text{Average Household Income}) + \beta_9(\text{Percent Population with a College Degree or More Education}) + \beta_{10}(\text{Distance to the Closest Library}) + \varepsilon$$

(Each model is then repeated with the sub-sample of respondents that do not have Internet access at home or work.)

## RESULTS

### Baseline: What Matters for Internet Use in the Full Sample

What factors influence technology use in any setting when we examine the sample as a whole? Table A-2 presents the logistic regression for Internet use for the entire sample. The first model in the left-hand column includes the variables measuring the respondent's individual characteristics as predictors for using the Internet for the entire sample (Table A-2). We find that respondents who are more affluent, educated, young, and parents are statistically more likely to use the Internet at home than respondents who are poor, less-educated, older and childless. Also,

African-Americans are statistically less likely to use the Internet than whites. Overall, these findings are consistent with previous studies on digital inequality (Mossberger, Tolbert and Stansbury 2003; US Department of Commerce 2002; Lenhart 2003; Fairlie 2004; Katz and Rice 2002).

None of the contextual variables have a statistically significant relationship with Internet usage in the full sample (Table A-2, Column 2). This suggests, when considering all types of Internet access (at home, work, and other places), the areas in which individuals live do not significantly shape their Internet usage. This differs from prior findings at the zip code level in national studies. Perhaps one reason is the lower level of scale used in our contextual measures here. Another may be the smaller amount of variation within this high-poverty, heavily African-American sample. Distance to the nearest library is not significantly associated with Internet use in the full sample.

### **What Matters for Internet Use Among Those Who Lack Regular Access?**

In the sample from the three socio-economically different communities, respondents' Internet use was not impacted by contextual characteristics. Yet, without readily available Internet access at home or work, individuals are forced to rely on resources within their communities, such as social networks and public institutions. Therefore, contextual characteristics may play a significant role when estimating a model for this sub-sample of respondents.

In this section we repeat the binary logistic regression models, with and without the contextual community variables, using a sub-sample of the survey respondents. The sub-sample population is all of those respondents who do not have access to a computer at home or at work. Since home and work computer access leads to more frequent and convenient Internet use, this

sub-sample of respondents may have different factors that influence their use of the Internet. The sub-sample of respondents without Internet access at home or work is composed of a greater proportion of African Americans. Also, the sub-sample of respondents is younger, with a lower mean education and income. We expect that both individual demographic predictors and environmental predictors will be related to Internet usage.

Table A-3 reports our two models estimating Internet usage for survey respondents who do not possess access to the Internet at home or work. Largely paralleling the findings for the overall sample, in the binary logistic regression model of the sub-sample of respondents who do not possess Internet access at home or work, those who are younger, more educated, white and parents are still significantly more likely to use the Internet. However, income is no longer a statistically significant predictor in explaining Internet usage. The sub-sample has a much smaller mean income than the full sample. Thus income may not be a significant predictor because of its lack of variance across the respondents included in the sub-sample.

There is a noticeable difference when we compare the coefficients from the full sample model with both individual and contextual variables (Table A-2, Column 2) with the sub-sample model with both individual and contextual variables (Table A-3, Column 2). Respondents with a greater proportion of African-Americans or a college-educated population within a one-half kilometer radius from the respondent's residence are statistically more likely to use the Internet than individuals living in communities with a smaller proportion of African-Americans or a smaller college-educated population. That is, when we examine only individuals who must regularly seek out Internet access in order to use the Internet, community characteristics become a statistically significant predictor of Internet usage. This may be due to the influence of social networks surrounding respondents, or because of resource differences in such communities.

Surprisingly, average household income for the buffered area surrounding respondents' residences is not statistically significant. Also, although respondents without Internet access at home or work may rely on public access sites for Internet use, the distance to library variable is not statistically significant. Education and other individual-level variables may be more important for motivating information technology use at libraries than proximity and convenience.

We consider the model in Table A-3, Column 2 to be the fully-specified model, but include the other models as a reference to the general population (full sample Table A-2) and the influence of individual characteristics (Table A-3, Column 1). This analysis suggests that, as hypothesized, community characteristics shape usage rates for those individuals who have obstacles in accessing technology (Internet at home and work), beyond individual-level factors.

#### **How Much Does Context Matter for Technology Use?**

Probability simulations are used to understand the substantive magnitude of the effect of geographic factors on Internet use, while holding other explanatory variables constant at their mean or modal values. All simulations are for the sub-sample – that is, those lacking Internet access at home or at work. The probabilities shown in Table 4 below are reported as percentages, but are based on the logistic coefficients reported in our fully-specified model (Table A-3, Column 2). The box presents simulations for a hypothetical respondent who is African-American, male, childless, with mean education, income, and age. The respondent is assumed to reside at a location with average African-American population, household income and educational attainment. The distance to the library variable is also set at the mean. Table 4 varies the percent African American and college graduates within one half-kilometer of the respondent's residence, holding other factors constant.

**TABLE 4 ABOUT HERE**

Two main findings are striking. First, the size of the African American population and the educational attainment of the community matter substantively and result in differences in Internet use, holding individual demographic factors constant. Second, educational attainment has a larger impact on Internet use. Respondents residing in areas with high levels of educational attainment (33.2 percent of the population with a college degree or more education) were 8.4 percent more likely to have use the Internet than the same respondent living an area where 16 percent of the population within a half-kilometer radius had a college degree — a comparison of one standard deviation above the mean and the mean.

Though not as large substantively, we find that holding other factors constant, African-American respondents residing in areas with a small African-American population (one standard deviation below the mean) within one half-kilometer of their home are 4 percent less likely to use the Internet than the same respondent living in a residence with an average African-American population (the mean); or 8 percent less likely than respondents living in an area with a large African-American population (one standard deviation above the mean) within one half-kilometer of their residence. This suggests that communities or social networks with high proportions of African-Americans are supportive of technology use and are associated with the effort that individuals without regular access make to use technology. But, better-educated communities provide an even more conducive environment, either because of social networks or the resources provided in places like Shaker Heights. These results are consistent with the powerful effect that education has in determining technology access and use in general, an effect that has been stable across a number of studies (Katz and Rice 2002; Mossberger, Tolbert and

Stansbury 2003; Fairlie 2004). Overall, place factors clearly matter for respondents without Internet access at home or work.

Given use at the homes of friends and relatives, social networks are a likely explanation for these place effects. Another, perhaps not mutually exclusive explanation is that differences in institutional resources in the three communities encourage or discourage public access use, and increase with the percentage of African-Americans and/or the percentage of college graduates.

### **CONCLUSION: DETERMINED TO GO ONLINE, YET LAGGING BEHIND**

Despite greater diffusion of information technology in recent years, regular access and use are still less common in low-income communities, according to our study of three northeast Ohio cities, as well as an earlier national study. Examining patterns of access and use in more detail at the local level, we find promise in the motivation of residents of low-income communities, alongside a continued need for technology resources.

The most striking aspect of our survey results is the extent to which residents of the poorest neighborhoods make an effort to compensate for a lack of home or work access. East Cleveland residents achieve levels of Internet use (but not frequency of use) that are close to those in Youngstown, where home Internet access is higher. Thirteen percent of East Cleveland residents are Internet users without home access, while only three to five percent of Internet users in the other cities rely exclusively on access outside the home. This demonstrates motivation to use technology, and is an encouraging sign. Public access is playing an important role in providing the primary or sole connection for many, although social networks of friends and family fill this need in low-income communities to a somewhat greater extent. The poorest neighborhoods in Youngstown also show higher rates of use outside of home and work in comparison with the city

as a whole, suggesting possible generalizability of these findings to other areas of concentrated poverty with high populations of African-Americans. While a program evaluation conducted by the University of Washington found that public libraries play a greater role in poor communities, this study demonstrates the importance of social networks as well (Gates Foundation 2004). The significance of social networks for sharing and learning about technology is consistent with research on resource sharing and kinship in the poorest neighborhoods (Stack 1974).

To better understand why areas of concentrated poverty stand apart even from other low-income communities, we conducted multivariate regression analysis that included contextual variables measured within a half-kilometer radius for each respondent. This created a unique geography for each respondent, allowing us to measure different dimensions of “place” precisely.

Results for individual-level factors were largely consistent with previous studies, for both the full sample, and a sub-sample of those who did not have Internet access at work or home. Only in the sub-sample did the contextual variables matter. The percentage of African-Americans and the percentage of college graduates in a respondent’s immediate environment had a positive and statistically significant effect on Internet use for those who lacked home or work access. Both of these indicate the supportive potential of social networks, or perhaps the influence of the attitudes and practices of others in the immediate environment. The encouraging influence of living in an African-American community makes sense when viewed in the perspective of prior research showing more positive attitudes toward technology among African-Americans compared to similarly-situated whites (Mossberger, Tolbert and Stansbury 2003; Mossberger, Tolbert and Gilbert 2006). This is apparently what drives the differences between areas of concentrated poverty and other low-income neighborhoods in our study. The impact of the racial

composition of the area is less pronounced, however, than the effect of neighborhood educational attainment. The presence of college graduates creates a conducive environment for technology use in more affluent communities, such as Shaker Heights. In contrast to a prior national study, we did not find any effects for income at the neighborhood level, but these differences may be due to less variation in the sample and to the measurement of contextual factors within a smaller area than the zip code level. At the local level it is possible to test the influence of factors such as distance to the closest library. This was not significant for determining Internet use either for those who lack home or work access, or for Internet use more generally. Other variables that were significant suggest capacity or interest as determinants of technology use, rather than convenience.

Despite some cause for optimism about the role of motivation for closing technology gaps, there is a need for further policy attention to the availability and quality of technology opportunities in poor communities. The problem with depending upon access in places other than home or work is that this leads to considerably less frequent use, and perhaps lower levels of skill. Real change will not be possible unless resources are available in these communities to maintain and improve public access in schools and libraries, and home access is encouraged through affordable technology or programs such as municipal broadband. The paradox, however, is that poor communities are often least likely to provide public support for technology access, because of the needs/resource dichotomy. Public and private partners have common incentives to promote public and home access, to facilitate workforce skills and economic development in disadvantaged areas, and to encourage the participation of all in the benefits of the information age.

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**Table 1. Comparison of Internet Use and Home Access**

	East Cleveland	Shaker Heights	Youngstown
<b>Internet Use</b>	52%	79%	51%
<b>Home Access</b>	39%	76%	46%

**Table 2. Place Where Respondent Uses Computers and the Internet *Most Often***

	East Cleveland		Shaker Heights		Youngstown	
	Computer	Internet	Computer	Internet	Computer	Internet
<b>Work</b>	22.5%	15.6%	36.7%	32.4%	20.7%	16.6%
<b>Home</b>	55.0%	63.0%	59.0%	62.6%	70.1%	71.3%
<b>Library</b>	7.0%	6.3%	2.2%	2.7%	2.4%	3.2%
<b>School*</b>	6.2%	3.9%	0.4%	--	1.8%	1.3%
<b>Friends/Relatives</b>	7.0%	8.6%	1.3%	1.8%	1.8%	6.4%

\*All respondents are adults.

**Table 3. Location Where Internet is Used Most Often in Youngstown and East Cleveland Citywide and in High-Poverty Areas\***

	Youngstown	East Cleveland	Youngstown High poverty	East Cleveland High poverty
<b>Sample Size</b>	164	128	29	89
<b>Home</b>	71.3%	63.3%	67.9%	58.9%
<b>Work</b>	16.6%	15.6%	14.3%	17.8%
<b>Other</b>	12.1%	21.2%	17.9%	23.3%

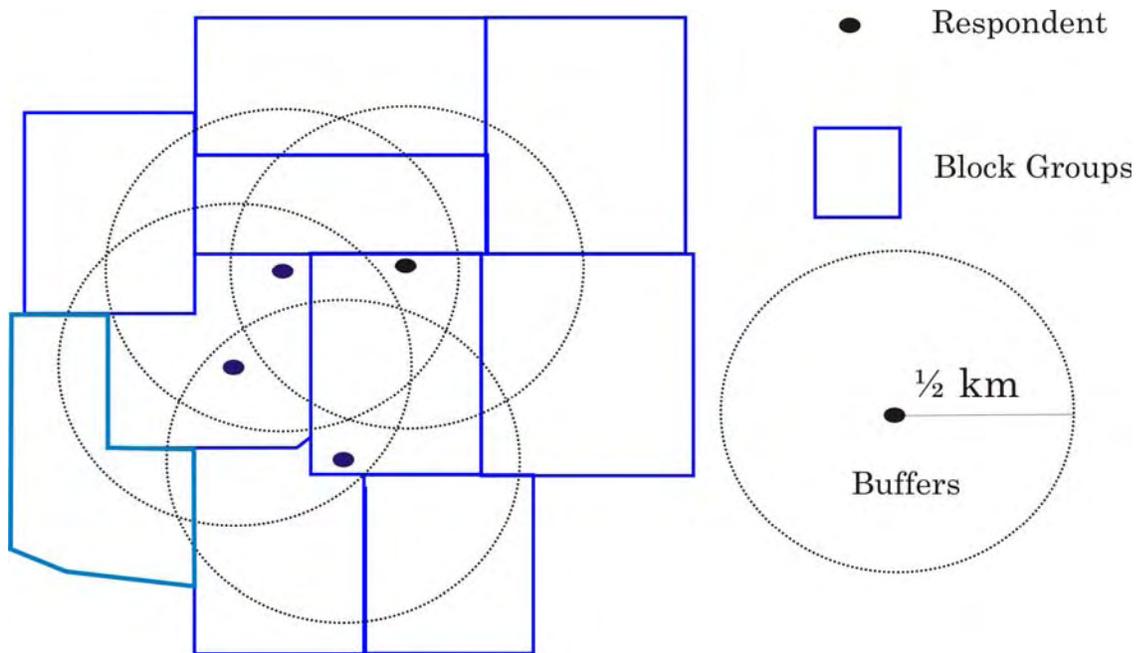
\*High poverty areas are those census tracts with 30 percent or more people residing below the poverty line.

**Table 4: Impact of Context on Internet Use for African Americans**

**Lacking Internet Access at Home or Work**

	Percent African American	Probability of Internet Use	Difference from the Mean	Percent College Graduates	Probability of Internet Use	Difference from the Mean
Very High (+2 SD)	100.0%	17.1%	+ 4.5	50.4%	32.5%	+ 19.9
High (+1 SD)	96.3%	16.6%	+ 4.0	33.2%	21.0%	+ 8.4
Mean	59.2%	12.6%	--	16.0%	12.6%	--
Low (-1 SD)	22.1%	8.6%	- 4.0	0.0%	8.2%	- 4.4
Very Low (-2 SD)	0.0%	8.3%	- 4.3	--	--	--

**FIGURE 1.**



**TABLE A-1: Descriptive Statistics: Individual and Community Variables**

	Mean	S.D.	Min.	Max.	Definition
<i>Individual Variables</i>					
African American	0.51	0.50	0	1	Dummy coded measure of race (0=all others, 1=African American)
Educate	3.03	1.22	1	5	Index of individual educational attainment (1=some high school or less, 2=high school graduate, 3=some college, 4=college graduate, 5=post graduate work or degree)
Income	3.56	1.69	1	5	Index of individual annual income (1=<\$18,000, 2=\$18,001-36,000, 3=\$36,001-54,000, 4=\$54,001-\$72,000, 5=over \$72,000)
Age	50	18	18	56	Measured in years
Male			0	1	Dummy coded measure of gender (0=female, 1=male)
Parent	0.34	0.47	0	1	Dummy coded measure of parenthood (0=no children, 1=has child(ren))
<i>Contextual Variables</i>					
African American Population	0.52	0.37	0.00	0.99	Percentage of population African American
College Educated Population	0.25	0.24	0.01	0.87	Percentage of population college graduate
Household Income	3.56	1.67	1	6	Average household income
Library distance					Distance to the library
(n=962)					

**TABLE A-2: Do you use the Internet?  
FULL SAMPLE**

Variables FULL SAMPLE	Individual		Community	
	$\beta$ (se)	p> z	$\beta$ (se)	p> z
<i>Individual Level</i>				
African American	<b>-0.45 (0.21)</b>	<b>0.03</b>	<b>-0.50 (0.27)</b>	<b>0.06</b>
Non African American	---	---	---	---
Education	<b>0.89 (0.11)</b>	<b>0.00</b>	<b>0.83 (0.12)</b>	<b>0.00</b>
Income	<b>0.50 (0.08)</b>	<b>0.00</b>	<b>0.46 (0.09)</b>	<b>0.00</b>
Age	<b>-0.06 (0.01)</b>	<b>0.00</b>	<b>-0.06 (0.01)</b>	<b>0.00</b>
Male	0.03 (0.20)	0.88	0.02 (0.21)	0.92
Female	---	---	---	---
Parent	<b>0.82 (0.23)</b>	<b>0.00</b>	<b>0.83 (0.23)</b>	<b>0.00</b>
Non-parent	---	---	---	---
<i>Community Level</i>				
African American Population			0.28 (0.38)	0.46
College Educated Population			1.33 (1.07)	0.21
Household Income			0.00 (0.00)	0.97
Library Distance			-0.12 (0.09)	0.18
Constant	0.11		0.07	
Cox & Snell R2	0.40		0.41	

Note: Binary logistic regression coefficients with standard errors in parentheses. Parameters in bold are significant at .10 or better. A dash in the place of coefficients indicates the variable's reference category. Listwise deletion of cases results in a final N of 820 selected cases.

**TABLE A-3: Do you use the Internet?**  
**SUB-SAMPLE – Individuals without Internet access at home or work**

SUBSAMPLE Variables	Individual		Community	
	$\beta$ (se)	p> z	$\beta$ (se)	p> z
<i>Individual Level</i>				
African American	<b>-0.55 (0.27)</b>	<b>0.05</b>	<b>-0.86 (0.35)</b>	<b>0.01</b>
Non African American	---	---	---	---
Education	<b>0.63 (0.15)</b>	<b>0.00</b>	<b>0.58 (0.15)</b>	<b>0.00</b>
Income	0.06 (0.12)	0.62	0.02 (0.14)	0.87
Age	<b>-0.06 (0.01)</b>	<b>0.00</b>	<b>-0.05 (0.01)</b>	<b>0.00</b>
Male	-0.29 (0.27)	0.27	-0.29 (0.28)	0.29
Female	---	---	---	---
Parent	<b>0.97 (0.30)</b>	<b>0.00</b>	<b>1.08 (0.31)</b>	<b>0.00</b>
Non-parent	---	---	---	---
<i>Community Level</i>				
African American Population			<b>0.86 (0.52)</b>	<b>0.10</b>
College Educated Population			<b>3.35 (1.59)</b>	<b>0.04</b>
Household Income			0.00 (0.00)	0.30
Library Distance			0.00 (0.16)	0.99
Constant	0.53		0.13	
Cox & Snell R2	0.23		0.24	

Note: Binary logistic regression coefficients with standard errors in parentheses. Parameters in bold are significant at .10 or better. A dash in the place of coefficients indicates the variable's reference category. Listwise deletion of cases results in a final N of 422 selected cases.

## **Coverage Error: The Achilles' heel of Web-based Surveys**

by

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\*\*\* DRAFT: NOT FOR CITATION OR QUOTATION \*\*\*

Science is a cynic, so Karl Popper tells us (cited in Maxim 1999). Its method is the method of elimination and as such it cannot “prove” our assertions, but its logic can show us where we err (Maxim 1999). The recent increase in the diffusion of computer and Internet technology in the United States and other industrialized countries has brought about an interest in this technology as a medium for survey research (Couper 2000; Dillman 2000; Witte 2004). Despite the allure and hyperbole surrounding this new technology, the reality is that its diffusion pattern in the United States is highly stratified by race, income, education, age, and geography (National Telecommunications and Information Administration and Economics and Statistics Administration 2004; Rivas 2004) and cognitive skill and personality (Freese and Rivas 2005). Consequently, the uneven diffusion of computer and Internet technology seriously hinders the viability of Internet/web-based survey research. As of now, coverage error makes the Internet unsuitable for social science research that aims to be representative of any population that extends beyond the very select group of people making up the online population. If we cannot eliminate the possibility that the unobserved individuals are importantly different from those observed, then we cannot and should not rely on those data to generalize to anyone beyond the collected sample.

Survey methodology, like any other mode of social science research, has its strengths and weaknesses. A well-designed survey that makes use of a carefully selected probability sample in combination with a standardized questionnaire can offer valid and reliable claims about its target population. On the other hand, a haphazardly designed survey that makes use of a convenience sample without regard to representativeness or

question design can result in observations that are at best a snapshot of its own idiosyncratic sample. The prospect for Internet/Web-based surveys, as of now, is more akin to the latter than the former. If an appropriate sampling frame can be assembled for a select population like university professors or company-x employees (where all employees of interest have an email address), then conducting an Internet/Web-survey to assess an aspect of it might be advisable (depending on the topic and types of questions being considered). If, however, the goal of a survey is to evaluate some parameter of the general population the researcher is best advised to follow phone, mail, or face-to-face data collection protocols.

This article has two aims: 1) to argue that as of now the internet is not a viable medium for socially representative survey research and 2) that it need not be so. First, however, I provide a brief history of survey sampling that leads into the recent interest in the Internet/Web as a medium for survey research. I review the four basic survey errors as defined by survey methodologists to introduce the idea that coverage error is critically important when thinking about the viability of nationally representative web surveys. I describe some of the main reasons for the great appeal of using the Internet for social science research, but temper that enthusiasm by reviewing the key reasons why the Internet is not viable as of now or in the immediate future. Despite this gloomy forecast, however, I conclude with reasons to be hopeful as new technology is developed and adopted more widely than current Internet technology.

## **BRIEF HISTORY OF SURVEY SAMPLING**

Contemporary survey methodology dates back to the mid-1930s. Sampling, as a research method, gained general acceptance in 1935 when George Gallup established the American Institute of Public Opinion for the purposes of conducting weekly polls on national political and consumer issues for private and public sector clients. Gallup developed a quota sampling method based on age, sex, and geographic region that normally selected between 1,500 to 3,000 respondents (Rea and Parker 1992). George Gallup and his methodology gained notoriety in opposition to the Literary Digest Presidential Election Poll of 1936. Using a much smaller sample, Gallup correctly predicted the outcome of the Alf Landon vs. Franklin Delano Roosevelt election. Up until then, the Literary Digest, a popular news magazine published between 1890 and 1938, had correctly predicted American presidential elections from 1920 to 1932 by mailing-out postcards to a large number of telephone subscribers and registered automobile owners, then basing its prediction on the returned postcards. The Digest's prediction failed because telephone subscribers and registered automobile owners were disproportionately affluent and Republican, while most of the citizens who voted in that election did not have a telephone nor were they Republican. From this point on, polling organizations realized that it *did* matter who was selected to participate in a survey and that simply collecting information from a large number of respondents did not matter as much as the sampling plan. According to Alain Desrosieres (1998), it was from this event that we gained a strong notion of "representativeness".

Quota sampling, as originally used by Gallup, was improved upon by area probability sampling, which eliminated interviewer influences on the sample selection and thus made it possible to accurately assess the probability of selection for any unit in the population.<sup>1</sup> By the 1960s, telephone surveys became more widely used than personal interviews for two main reasons: 1) by then more than 90% of the U.S. population had access to telephones and 2) door-to-door efforts were becoming too expensive due to the rapid increase of women working outside the home, thus making it more difficult to find respondents at home (Sudman and Blair 1999).

The use of the telephone for survey purposes prompted the refinement and expansion of sample selection by developing random digit dialing (RDD) methodology. Random digit dialing has evolved from using telephone directories as the sampling frame,<sup>2</sup> which was often very inefficient due to problems with unlisted numbers, to a much more efficient strategy of grouping telephone numbers by geographical “exchanges” and then randomly dialing the last 2 digits of a number (Groves 1990). Further improvements have been made to the random selection of individual household members as well. For example, once contact has been established with the selected household, interviewers can ask for the household member with the most recent birthday, thus randomizing the selection process (Sudman and Blair 1999:271).

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<sup>1</sup> Quota sampling attempts to reproduce a sample of looks very much like the population in general. Interviewers are asked to select so many men and so many women, or so many young and so many older persons for participation, in accordance with the census proportions. In this sense, the interviewer is free to select the sample as long as it fulfills the quota requirements. For more details, see Raj, Des. 1972. *The Design of Sample Surveys*. New York, NY: McGraw-Hill Publications.

<sup>2</sup> Sampling frame is the complete list of names of a target population from which a sample is drawn.

Seymour Sudman and Edward Blair (1999) also document the improvements in mail surveys and the development of other less reliable sampling methods like mall surveys, focus group studies, and other self-selected opinion polls readily available for news organizations. For the purposes of this paper, however, I do not focus on these types of developments because my purpose is to discuss the viability of the Internet as a medium for representative survey research on household populations.

Overall, survey methodology has evolved from simply gathering a large number of responses to more sophisticated efforts that attempt to measure the target population through careful random selection of participants. Survey researchers have also improved survey question design and other related methods (Czaja and Blair 1996; Groves 1989). More recently, computer technology, according to Couper and Nicholls, has had a significant impact on telephone, in-person, and self-administered data collection methods (1998). While the exact effects are still being assessed, it is generally believed that computer assisted data collection is an improvement over previous paper and pencil methods and a must for the current pace of information gathering. In the remainder of the paper, I describe the reasons why the Internet is not viable for nationally representative survey research, but why there are reasons to be hopeful.

## **SURVEY ERRORS**

Survey errors are defined as “deviations of obtained survey results from those that are *true* reflections of the population” (italics added Groves 1989:6). Survey errors are therefore any survey results that do not match up with the theorized, presumably known,

results from the larger target population. These errors, as I briefly review below, occur for various reasons. Some are easy to assess and account for because they are part of the sampling design (e.g., sampling error) while others are much harder to do anything about (e.g., nonresponse error). Given an inexhaustible source of money and interviewing resources, many of these errors can be kept at a minimum, but as Robert Groves aptly puts it, “the art of survey design consists of judging the importance of unmeasurable (or not cheaply measurable) sources of error relative to the measured” (1989: 34). Thus, designing and administering any survey often implies many compromises depending on available resources.

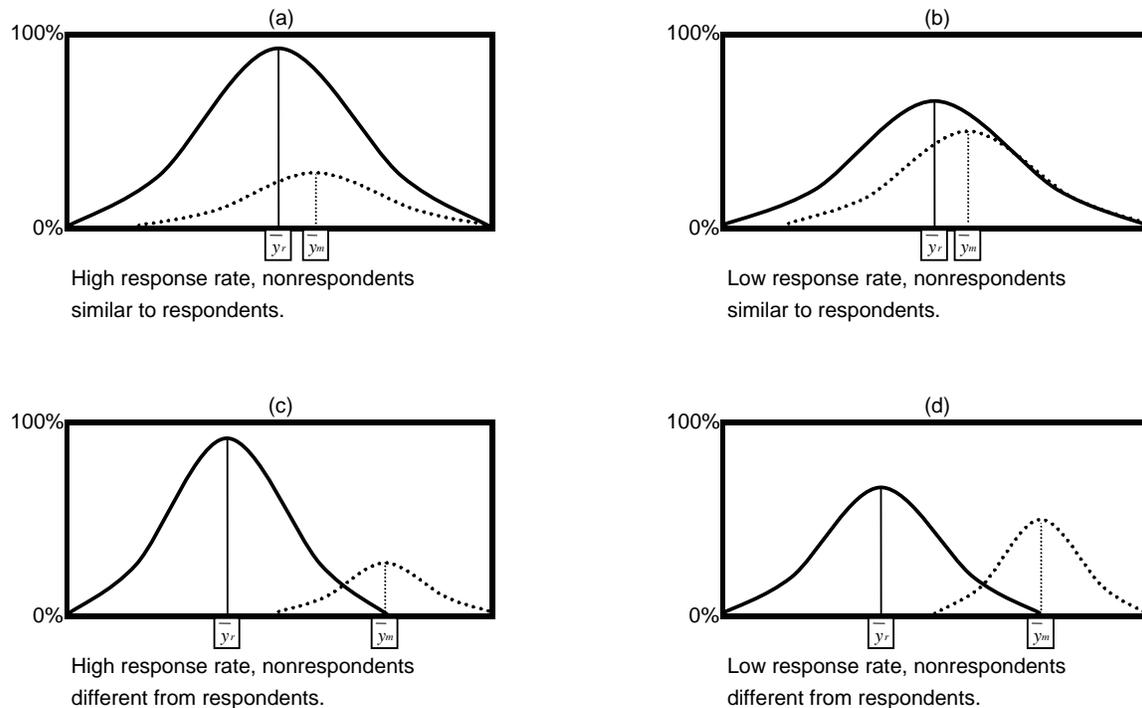
Generally, the consensus is that there are four main sources of error in surveys – coverage error, sampling error, nonresponse error, and measurement error (Groves 1989; Groves and Couper 1998). I briefly review each in following section, but I expand on coverage error in greater detail later in the paper.

**Coverage Error:** A key requirement for any well-executed survey is a well-defined target population. If the target population is not easily identifiable and listed, drawing a random sample from it becomes a problem. Failure to adequately define and list the target population results in coverage error. More specifically, coverage error occurs when some members of a target population do not have a *known nonzero* probability of selection. That is, when an individual has *no* probability or an *unknown* probability of being included in the sample, we get coverage error. In practice, this occurs when some people are not part of the list or “sampling frame” used to identify

members of the population. A clear example of this occurs when using telephone numbers to sample the U.S. household population because not all households have telephones and thus these households have a zero probability of being selected for the sample. For our purposes, a similar thing would happen when using email addresses to construct a sampling frame from which to draw a nationally representative sample of the United States.

**Nonresponse Error:** This type of error, akin to coverage error, occurs when selected respondents cannot be located or refuse to participate. Nonresponse error has a sinister effect in so far as those who do not participate are importantly different from those who do. In other words, nonresponse error is really a function of both the nonresponse-rate in combination with any substantive, but unmeasured and unknown difference between respondents and nonrespondents.

**Figure 1. Hypothetical Frequency Distributions of Respondents and Nonrespondents**



Based on Figure 1.1 in Groves, Robert M. and Mick Couper. 1998. Nonresponse in Household Interview Surveys. New York: Wiley. (p.4-5).

Figure 1 depicts four possible nonrespondent-effects. Graphs A and B are of little consequence, although neither is desired if it can be avoided. Graphs C and D are worse case scenarios, particularly Graph D. Graph D shows not only a low response rate, but also a large and significant difference between respondents and nonrespondents. The combination of these two factors can be a disaster for the purposes of representativeness and accuracy of results. For example, if the nonrespondents in this case were to be included in the sample as they should be, it is very likely that the observed respondent mean would be substantively and statistically different. Perhaps the most unsettling

aspect of this type of error is that often there is no clear way to detect or check how respondents are different from those who chose to participate. Even more frustrating, however, is that several of the surveys that I list below made no clear effort to mention nonresponse error in their results. Because there are commonly substantial differences between respondents and nonrespondents, nonresponse error is not to be taken lightly (Couper 2000; Groves, Cialdini, and Couper 1992; Groves and Couper 1998; Raj 1972).

**Sampling Error:** This type of error is not an error as in the sense of making a mistake, but rather a consequence of using samples to predict population characteristics. More precisely, it is a byproduct of calculating a statistic based on a subset or a sample of the population. That is to say, every time one draws a sample from a target population, the sample mean will vary slightly from one time to the next, but over an infinite number of samples of the same size, the mean of the sample distribution equals the true population mean. This type of error is by far the most widely reported error found within the selected digital divide studies below, because it is relatively easy to estimate.

**Measurement Error:** Unlike the aforementioned errors, which deal with issues of nonobservation, that is, effects of not adequately capturing a representative sample, measurement error is one that occurs when answers by respondents deviate from their true intentions or beliefs. These types of errors can be a result of several things ranging from misinterpretation or miscomprehension of the questions to lack of motivation by the

respondent, the characteristics of the interviewers, social desirability, order of questions, or any other questionnaire design issue.

In a similar fashion to nonresponse error, measurement error can be hard to assess unless specific efforts are made to pretest questionnaires. Other fruitful efforts to minimize measurement error include racially matching interviewers to respondents and properly training interviewers on how to probe without enticing or biasing the responses.

### **SUMMARY**

These four types of errors, according to the survey statistics field, can be summed into the total error of a survey – the “mean square error” (Groves 1989:8). This formulation is important because it allows us to establish a benchmark by which to gauge reported errors. As mentioned earlier, however, designing and implementing a large survey often means plenty of compromises, especially in relation to what is an acceptable degree of error. Groves (1989) notes that most survey designs attempt to reduce only one type of error - sampling error - because it is the easiest to measure and control and thus to justify in terms of cost. This choice, however, is misleading because it assumes that a reduction of this type of error will also reduce the other three.

In fact, according to Groves (1989), it is often the case that researchers attempt to weight their samples by using the Current Population Survey or U.S. Census demographic characteristics to create a more “representative sample.” While this technique does provide a multiplier by which to adjust raw number counts in the sample, it *does not* and *cannot* adjust for how the missing nonrespondents may have truly

answered had they been included in the sample. That is, it only can account for response biases to the extent they are correlated with the demographic variables used in adjustment. However, nonresponse may be associated with many other variables other than demographic characteristics. Therefore, it is very problematic to assume that by adjusting marginal counts one will also appropriately adjust responses to attitude questions about computer and Internet technologies or any other socially sensitive question. More succinctly, this tactic assumes no difference between respondents and nonrespondents within the categories used to adjust response distributions.

## **PROSPECTS OF INTERNET/WEB SURVEYS**

The recent diffusion of personal computers and the subsequent adoption of various forms of Internet communication programs and devices have brought about the next step in the evolution of survey research – Internet/Web survey methodology (Best, Krueger, Hubbard, and Smith 2001; Couper 2000; Couper 2001; Crawford, Couper, and Lamias 2001; Dillman 2000).<sup>3</sup>

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<sup>3</sup> For an updated list of Web Survey literature, visit <http://www.ris.org/indexuk.html>.

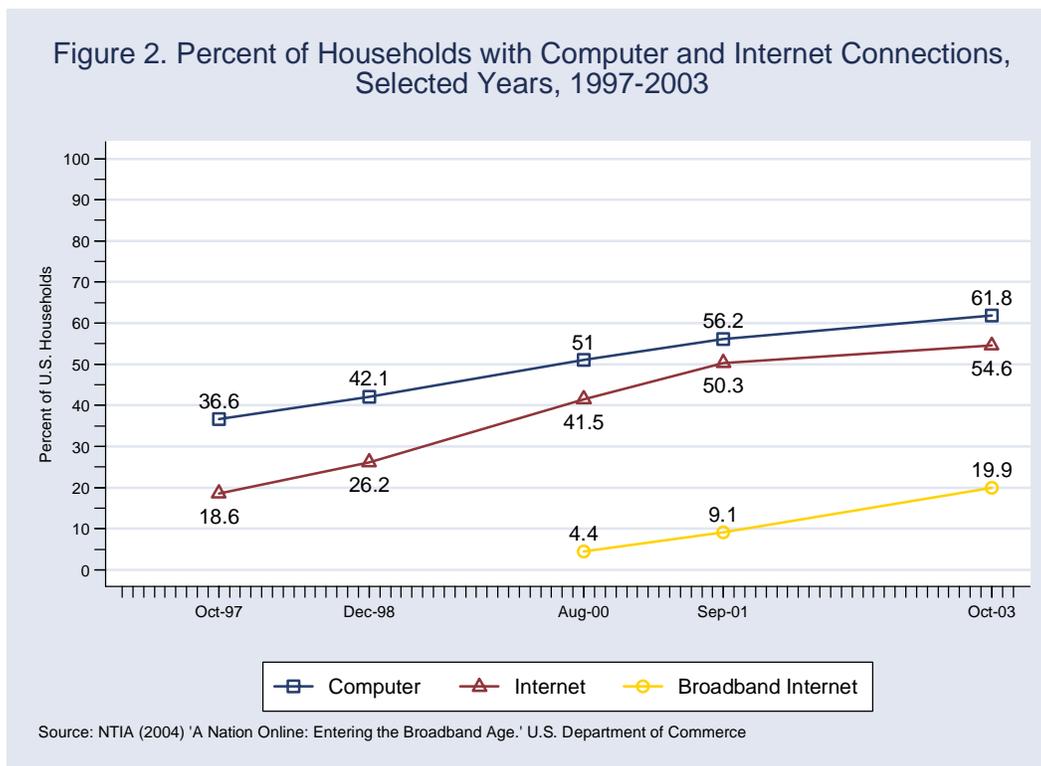


Figure 2 shows the percent of households with a Computer, an Internet Connection, or Broadband Internet access from 1997 to 2003. Using Current Population Survey data, the percentage of households that report having a computer has grown from 36.6 in 1997 to 61.8 percent in 2003. The percent of households with an Internet connection has also grown from 18.6 in 1997 to 54.6 in 2003. Starting in August 2000, the Current Population Survey began asking about broadband internet access and found that only 4.4 percent of households had such access but that percentage grew to 19.9 by 2003. These figures have paved the way for interest in the web/Internet not only for commercial purposes (e.g., book retailers like Amazon.com or Barnes & Noble) but also data collection via web-surveys.

The growth in computer and Internet access has increased interest in web/Internet survey methodology. As reported by Vicki Pineau (2005) overall spending for online research increased by 53% between 2000 and 2001, another 61% in 2002, and this growth rate is expected to continue for the time being. Samuel Best and his colleagues (2001) note that the Internet presents an unprecedented opportunity for data collection since it makes possible the implementation of complex survey instruments that can deliver video and audio in addition to traditional text. Moreover, the Internet also offers quick and efficient capabilities to collect, store, and manage survey data (Dillman 2000). These capabilities fuel the enthusiasm for this medium as the possibilities seem limited only by the creativity of the researcher. Consequently research institutions, mainly market research firms, have increased their efforts to collect surveys via the web (e.g., Forrester, HarrisInteractive).

While computer and Internet access has increased significantly over the last decade, the diffusion pattern is not equal across age group, education level, income, region, urbanicity, or racial group. Using the October 2003 cross-section of Current Population Survey data on computer and Internet usage, Table 1 shows the distribution of reported Internet access for those ages 18 and over for each of the factors noted above by racial group. The table shows that only 35.8% of Hispanics report having access to the Internet, either at home, work, school, library, or a friend's home. That value is followed by 45.9% of individuals that identify as Black, and 52.2% of Native Americans/Others. Finally, 65.4% of Whites, and 65.6% of Asians report having access to the Internet as of October 2003. Simply based on this cross-classification we find that anywhere from

34.4% to 64.2% of Americans did not have access to the Internet at that point in time, suggesting that at best nearly 35% of U.S. adults would be excluded from a web/Internet-based survey whose goal was to capture a nationally representative sample.

When we consider Internet access by age, level of education, income, region, or urbanicity, we also find inequality in the diffusion pattern. Internet access is highest among the younger age groups, the highly educated, the affluent, those living in suburban areas, and those in the Western region of the United States. This particular pattern does not bode well for a web/Internet-based research study whose aim is to understand the attitudes among the poor, low-educated, elderly living in southern rural areas. In general then, Table 1 clearly shows that as of October 2003, Internet access was not dispersed equally enough among the adult, non-institutionalized, civilian population to be an appropriate medium for collecting population level data.

In previous work, I show that even after controlling for important sociodemographic and socioeconomic factors Black and Hispanic households are significantly less likely than White and Asian households to report having a computer at home (Rivas 2004). For our purposes, this finding is particularly important because it suggests a significant difference by race that expands beyond the usual SES suspects, which as indicated earlier are often used to weight or adjust known sampling biases.

Such error should be of particular concern to students of the digital divide because difference in access to computers and the Internet have been closely associated with issues of poverty and low education. Unfortunately, these factors are also associated with those who *do not* have telephones, thus making this portion of the population much less

likely to be captured by random digit dialing telephone surveys. The consequences of this drawback have not yet been fully appreciated in recent research on the digital divide.

### MEASURING THE EFFECT OF COVERAGE ERROR

As noted above, a key requirement for any well-executed survey is a well-defined target population. If the target population is not easily identifiable and listed, drawing a random sample from it becomes a problem – resulting in coverage error. In other words, whenever any or some members of a target population do not have a *known nonzero* probability of selection or said differently, when an individual has *no* probability or an *unknown* probability of being included in the sample, we have coverage error.

The effect of coverage error on a linear statistic can be expressed as a function of two components: the proportion of the target population that is not covered by the frame and the difference on the survey statistic between those covered and those that are not.

This relationship can be expressed in the following form:

$$Y = \frac{N_c}{N} Y_c + \frac{N_{nc}}{N} Y_{nc},$$

where  $Y$  = the population parameter being estimated;

$N_c$  = number in the target population covered by the sampling frame;

$N_{nc}$  = number in the target population not covered by the sampling frame;

$N$  = total number in the target population;

$Y_c$  = value of the statistic for those covered by the sampling frame;

$Y_{nc}$  = value of the statistic for those not covered by the sampling frame;

The equation above can be reworked to illustrate the nature of noncoverage error

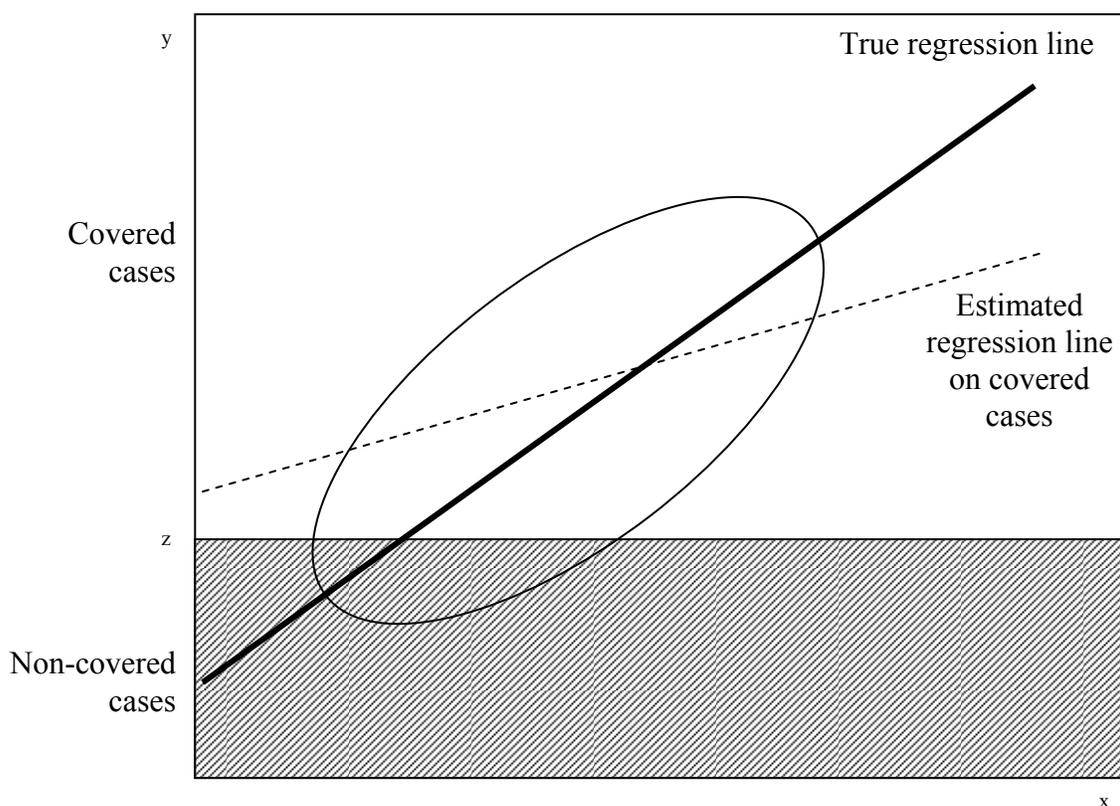
$$Y_c = Y + \frac{N_{nc}}{N} (Y_c - Y_{nc}).$$

That is to say, the value for the covered sample ( $Y_c$ ) is equal to the target population value plus the proportion not covered times the value of those covered minus the value of those not covered. Consequently, this equation suggests that even if the noncovered cases is a large fraction of the population frame but that fraction is not importantly different from those cases that were covered, the bias due to noncoverage will be minimal. Conversely, if the fraction not covered is relatively small, but those cases are significantly and importantly different from those covered then a large noncoverage bias may result. Graphically, these scenarios are similar to those depicted in Figure 1 for the nonresponse-effects. While the effect of both noncoverage and nonresponse is similar; the mechanisms that produce them are distinct. Noncoverage error arises from incomplete sampling frames while nonresponse error is generally the result of noncompliance by units that have been selected into the sample.

In Figure 3, we see the effect of “truncation” on the variance of the dependent variable  $Y$ . The effect of the non-covered cases on the regression line is the result of the reduced (truncated) variance around the dependent variable. The assumption is that the missing, or non-covered, cases would not only add to the variance around  $Y$  were they not missing, but that these cases are also substantively different in relation to the

dependent variable. More specifically, figure 3 shows two regression lines; the dashed line representing the estimated regression line on covered cases only and the darker line representing the “true” regression line that includes all target cases.

**Figure 3: Effect on estimated regression line under truncation of the sample on the dependent variable ( $y$ ); all  $y_i < z$  not covered.**



Source: Adapted from Groves, Robert M. 1989. *Survey Errors and Survey Costs*. New York: John Wiley & Sons.

Unfortunately, it is often nearly impossible for researchers to know exactly how large the coverage error is for any given statistic. The reasons being that it is often

difficult to know how large the proportion,  $N_{nc}/N$ , not being covered is and similarly it is difficult to know how different the noncovered cases are from those that are covered. Moreover, even though  $N_{nc}/N$  is constant over the entire sample, it will vary over different subclasses on which statistical estimates might be calculated, for example racial and ethnic categories. The term  $(Y_c - Y_{nc})$  can also vary over all estimated statistics. For example, in the United States the omission of Hispanics and Blacks is likely to have a larger effect on our estimates of the proportion of people that are unemployed as opposed to an estimate of the proportion of people that have ever driven a car. In the first example, being Hispanic or Black is significantly associated with being unemployed while the second example is not necessarily so, thus coverage bias would matter in former more so than in the latter. Nevertheless, as Bob Groves (1989:95) states, “Coverage error can affect both simple and complex statistics calculated on sample surveys.” For this reason alone coverage error is why the Internet is not viable as the sole medium by which to collect nationally representative data.

### **TYPES OF COVERAGE ERRORS**

Beyond the difficulties noted above, there are also practical problems that can arise related to coverage issues. Figure 4 presents a typology of coverage problems identified by Kish (1965). The “F’s” in Figure 4 represent elements of a sampling frame that are listed as being part of the set. The “T’s” are members of the target population; cases that should be included in the study. Ideally, a survey would only ever contend

with Case I scenarios, where there is a one-to-one correspondence between the population frame and the target population.

**Figure 4: Components of Coverage Error**

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<u>Case I</u>	<u>Case II</u>	<u>Case III</u>	<u>Case IV</u>	<u>Case V</u>
F ----- T	----- T	F -----	F ----- } T	F {----- T
F ----- T	F ----- T	F ----- T	F ----- } T	F {----- T
F ----- T	F ----- T	F ----- T	F ----- T	F ----- T
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
F ----- T	F ----- T	F ----- T	F ----- T	F ----- T

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Source: Adapted from Groves, Robert M. 1989. *Survey Errors and Survey Costs*. New York: John Wiley & Sons.

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More frequently, however, surveys encounter Case II coverage problems in which members of the target population do not appear in the population frame, the list of elements from which the sample will be drawn. For our purposes, our target population could be all civilian adults that are not institutionalized, but given the current state of Internet diffusion only a fraction of this population would ever appear on a list of email addresses from which a sample could be drawn.

Case III scenarios are when the frame includes elements that are not part of the target population. In relationship to phone telephone surveys for example, this type of situation would occur when the survey was meant to sample individuals, but the list of phone numbers from which the sample was to be drawn from included businesses and

other organizations. Similarly in the case of email addresses, this scenario would be the case when the list of email addresses included those of businesses or any other non-individual organization email address. Moreover, users often have multiple addresses that are not associated with any particular internet service provider (e.g., yahoo.com, gmail.com). Thus, distinguishing between personal versus work/organization email addresses in some cases might be easy (e.g., *username@dell.com*) but in other cases it might not be (e.g., *username@heiberg.com*). In the former case, we can assume that the address at Dell.com is most likely an employee since Dell is not yet an Internet service provider. In the second example, however, the user could be a small business owner and his/her address at Heiberg.com is the only email address through which he/she communicates on a daily and consistent basis.

Case IV issues are likely to be a problem especially for Internet/web surveys. In these scenarios, the sampling frame contains multiple entries for the same target population element. Multiple email addresses for one individual, for example, would be a case of this, also known as “overcoverage.” A similar problem exists for personal telephone numbers, which is aggravated if mobile telephone numbers are included in the sampling frame. In the cases where it can be verified that one individual is associated with multiple email addresses, then one address can be randomly chosen to represent that individual, but often times the usernames (handles) are not specific names easily associated with one individual versus another (e.g., *chevy74@yahoo.com*, [warxal@gmail.com](mailto:warxal@gmail.com), etc.). Although, even if this were not known, the researcher could

ask the respondent whether he or she has multiple email addresses and weight their response down in proportion to the number of their email addresses.

The final type of coverage error (Case V) identified by Leslie Kish corresponds to scenarios where one frame element corresponds to multiple target population elements. A clear example of this occurs when one household address corresponds to multiple household members. Or in our case, Case V issues would arise when one family decides to use one email address for the entire family when in fact our goal is to give every individual the same probability of selection into the study. In this case, the researcher could select a respondent at random from among those using the same email address and weight their responses upward in proportion to the number of persons using the address. Adjusting for this type of cases would not be hard if the survey were able to verify the number of individuals sharing an email address and to choose a respondent at random; without such procedures, however, there would be a serious a flaw in the design.

## **OVERCOMING THE WEAKNESS**

Despite its wonderful, theoretically possible capabilities, the Internet is not *currently* a medium for the collection of unbiased random sampling of large noninstitutional populations. This shortcoming, as Mick Couper notes (2000) can be overcome if the researcher's target population is *only* current Internet users or members of a specific subgroup for whom internet access is universal and the researcher has a complete sampling frame (e.g., college students, company employees). The latter

criterion is much harder to obtain given our current anti-spamming rules and the fact that many people have multiple e-mail addresses.

Coverage error is not the only complication that researchers must surmount to adequately design a web/Internet survey. As noted earlier, unequal access is one of the difficulties in using the Internet for survey research, but only a part. In the abstract, everyone in the United States has access to the Internet either at home, at work, school, or at their local library. Access, then, is not the real problem but rather that a complete list of email addresses for everyone in the United States, for example, does not exist. Therefore, building an adequate sampling frame from which to draw a random sample is impossible as of now.

In addition, Crawford et. al. (2001) suggest that web surveys may be perceived to be more trouble than they are worth. That is, unlike traditional mail surveys in which the respondent can peruse the instrument at their leisure and make a decision about completing it or not based on how much work they believe it to be, web surveys do not allow for this assessment. Therefore, unless special efforts are made to lessen the “perceived burden” respondents will not be likely to participate.

In the case of the United States, building a population frame from which to sample would be difficult and complex for many reasons. One potential approach to building a population frame would be to assign everyone a unique username in conjunction with their social security number, without of course exposing the actual number itself. While this may sound ideal, the administrative and technical workload alone would be a daunting task as the U.S. population pushes beyond 300 million. But

even if the administrative and technical problems were not an issue, issues of privacy and citizenship would be. Who would have access to these unique usernames? How would we include immigrants into the population frame? How would we include undocumented immigrants?

As James Witte (2004) suggests a possible solution in the short term could be to take a multimethod approach to data collection. Such an approach would stratify and match the population with modes that are likely to minimize nonresponse and coverage errors. This approach, however, would have to assume or guard against potential mode-effects. In general, dual-frame, mixed mode methods can yield fruitful discoveries not only about the population of interest, but also about mixed-mode survey methodology.

In February of 2005, the city of Philadelphia decided to make free wireless connectivity available to all its citizens who were within the broadcasting range of its wireless system (Dao 2005). Later that year, the city of Alexandria, Virginia also announced a similar plan (Gowen and MacMillan 2005). Developments like these are a step in the right direction: reducing the digital divide and also reducing the amount of potential coverage error associated with web-surveys. These developments, however, still require that individuals have a computer or some sort of device with which to access the free wireless services. Of course, this also assumes that we can assemble a universal email address list as discussed above.

Another recent development still in its infancy is the diffusion of “smartphones.” A smartphone is any electronic handheld device that integrates the functionality of a mobile phone, personal digital assistant or other information appliance (Wikipedia). A

key feature of a smartphone is that additional applications can be installed on the device. The applications can be developed by the manufacturer of the handheld device, by the operator or by any other third-party software developer. As of October 2005, the Cellular Telecommunications & Internet Association (CTIA) estimates that there are 194.5 million wireless phone subscribers in the United States with approximately 6% of households being completely Wireless (CTIA 2005). That is to say, about 65% of the U.S. population are wireless subscribers. These numbers, however, do not distinguish between regular cellular telephones and “smart phones.” Nevertheless, smartphones, small and highly portable devices that serve many functions, are likely to diffuse wider and faster than personal computers and thus help overcome the computer/Internet divide that currently exists. When that occurs, web-surveys for social science research will be much more viable than at present.

The use of smartphones and other mobile technology assumes that cost is only charged to the caller. Of course, the marginal cost to a potential survey respondent using a hard-wired PC is zero, and the same holds for a fixed-cost wireless connection, but most mobile communication systems still charge recipients as well as initiators of contacts. Thus, the proposed use of smartphones and similar technologies will not be viable until there is not only universal coverage, but universal coverage with only the caller paying as well.

## CONCLUSION

In general, Internet/Web surveys are susceptible to coverage error (Couper 2001) since only about 60% of the U.S. population is online. More problematic, however, is that being online is strongly associated with income, education, and race. In so far as the people online are substantively different than those who are not, sampling the current online population will render a biased sample. Any attempt to collect data through this medium with the aim of generalization to the entire population is likely to be skewed. Thus, aside from meaning that certain groups do not have access to the vast amount of information online, the digital divide also has consequences for social scientists who wish to use the web to conduct nationally representative studies. This divide is the main reason why coverage error exists in web-based surveys, and this source of coverage error makes the Internet unsuitable for social science research that aims at being representative of any population that extends beyond the very select population of users.

If these shortcomings can be overcome, by establishing nearly universal access, as we have done with the telephone, then the Internet will become more viable as a survey medium. Until then, however, unless our interests lie in interviewing specific segments of the population online, our best bet is to rely on traditional survey methods – in-person, mail, or telephone assuming proper and adequate sampling schemes.

Future research on the digital divide should consider, and whenever possible incorporate, appropriate controls and checks for each of the types of errors discussed in this paper. Furthermore, given what we know about telephone penetration rates among

the poor and less educated, it is important that special efforts be made to survey this often neglected subgroup. In addition, with the constant bombardment of media ads for computers and Internet technologies, it might be prudent to watch for interview desirability effects among certain groups in the population; that is, there may be pressure to declare that people have access to a computer or the Internet when in reality they do not. It is possible, that a certain level of negative stigma is felt among those who see computer ownership or Internet usage as a status symbol. If we disregard this possibility, we might overestimate computer ownership and Internet access and thus diminish efforts to bridge the digital divide.

In summary, I close with a quote by Des Raj (1972). He states, “It should be conceded...that we do need figures to make the right type of decision. Government, business, and the professions all seek the broadest possible factual basis for decision-making. In the absence of data on the subject, a decision taken is just like leaping into the dark. We need statistics, in fact better and better statistics” (3). This statement may be truer than ever now that we find ourselves in the so called “Information Age.” As consumers, producers, and processors of statistical information, we need to learn how to effectively deal with and decipher the large amount of data increasingly available to us. Moreover, as the world population grows, household censuses will be simply too expensive to administer. Consequently, survey methodology will offer the most convenient and least expensive approach for measuring human activity.

As I have noted above, survey research has its weaknesses and web-based surveys in particular, has its Achilles’ heel, but if done carefully it can yield strong and reliable

data. Overall, we must be cautious not to be too cynical about large numbers or to dismiss them as too general and disconnected from reality – at the grass-roots level. Instead, we must learn as Darrell Huff suggests, “...[to] look a phony statistic in the eye and face it down; and no less important, how to recognize sound and usable data in that wilderness of fraud...” (1983:122). Although perhaps a bit alarmist, Huff’s general point is welcome in our age – when data appear to be everywhere, and the pressure to publish and publicize can lead us away from being critical of the source of the data.

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**Table 1. Reported Internet Access for Age, Education, Household Income, Region, Urbanicity by Race/Ethnicity for Adults (age 18+), CPS 2003 (weighted).**

	White	Black	Hispanic	Asian	Native American	TOTAL
<i>Has Internet Access</i>	65.44	45.88	35.77	65.62	52.15	59.48
Age 18 to 19	82.02	60.83	50.11	87.83	53.30	73.80
Age 20 to 24	77.72	58.04	45.20	82.71	73.04	69.44
Age 25 to 29	77.82	55.32	36.39	83.20	60.41	66.66
Age 30 to 34	80.57	59.48	39.41	77.73	68.77	70.15
Age 35 to 39	78.33	53.12	36.73	73.48	50.40	68.31
Age 40 to 44	76.92	47.19	38.37	66.61	66.28	68.08
Age 45 to 49	74.89	43.71	37.42	66.05	40.78	66.85
Age 50 to 54	71.11	46.48	33.18	56.18	50.55	64.30
Age 55 to 59	66.31	42.04	29.32	55.00	52.15	60.78
Age 60 to 64	54.96	28.12	19.27	44.10	35.73	49.05
Age 65 to 69	42.34	17.80	13.02	24.24	36.45	37.40
Age 70 to 74	30.97	13.85	10.92	25.79	7.25	27.88
Age 75 to 79	25.11	7.80	9.08	13.29	9.89	22.67
Age 80 +	11.16	4.75	4.49	13.70	1.63	10.38
Less than high school	25.05	16.67	12.53	21.84	22.24	19.59
High school degree	50.81	34.22	35.67	43.35	42.01	46.72
Some college	74.92	60.69	61.36	71.28	74.53	71.82
College degree	87.23	78.25	76.09	81.32	84.49	85.45
More than college	88.14	84.48	82.44	91.87	86.44	88.04
Blank/DK/Refused	53.35	40.34	28.79	54.78	38.07	48.99
Under \$25,000	37.93	26.26	21.35	47.58	37.41	32.93
\$25,000 - \$49,999	61.73	50.67	37.46	59.96	59.77	56.60
\$50,000 - \$74,999	78.16	70.12	52.66	71.75	72.87	74.74
\$75,000 - \$99,999	84.72	73.62	68.64	78.15	84.93	82.52
\$100,000 or More	90.82	81.68	77.55	88.92	94.78	89.72
Central City	68.16	43.19	31.98	59.44	57.84	55.02
Suburban	69.56	56.74	40.64	70.50	66.90	65.18
Rural	54.17	29.49	30.20	61.71	37.08	50.62
Not Identified	65.97	42.59	36.09	69.99	65.26	60.95
Northeast	64.24	49.91	37.87	62.26	58.07	60.11
Midwest	63.92	44.66	35.55	77.82	43.46	61.00
South	63.28	43.73	35.48	69.68	54.19	56.49
West	72.47	53.60	35.32	62.90	53.36	62.10

Note: Reported Internet access is from anywhere (e.g., home, work, school, library)

Source: Current Population Survey, October 2003

**Initial Thoughts – Draft For Discussion  
Developing a Broadband Policy for Illinois  
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November 26, 2007**

This is a good time to consider seriously the contours of a broadband policy for Illinois. Jim Baller’s “Eight Bold Steps to a National Broadband Policy” was written a year ago, in January of 2007. There is national legislation nearing passage that provides funding to state efforts for broadband mapping, assessment and planning. There are a variety of state efforts – Tennessee, Kentucky, Vermont, California, Tennessee, West Virginia and Michigan – that illustrate ways that other states have approached this problem. Finally, there are strategies in other countries to plan for and implement broadband deployment initiatives of 100M and 1G services. There is a lot “out there.”

**Baller - “Eight Bold Steps to a National Broadband Strategy”:**

A good place to start the Illinois analysis is with the Baller paper. His “national approach” could be adapted to the situation in Illinois. At the end of his paper, he quotes Thomas Bleha in *Foreign Affairs* of May, 2005 in describing the benefits of broadband:

“By dislodging the United States from the lead it commanded not so long ago, Japan and its neighbors have positioned themselves to be the first states to reap the benefits of the broadband era: **1. economic growth; 2. increased productivity; 3. technological innovation; and 4. an improved quality of life.**”

These concepts, while abstract, are discussed and measured by economists. While broadband infrastructure by itself may not be the sole cause of improvements in these indicators, it is important to consider what contributions broadband may make to improvements and what other initiatives might also be required – e.g. education, training, devices, local ecosystems supporting innovation – for these economic improvements to be realized. The Baller paper provides a good foundation for Illinois based discussion.

His argument proceeds. Broadband is important for economic growth, increased productivity, technological innovation and an improved quality of life. To achieve these objectives there is a need for a National Broadband Policy. There are a number of countries with national broadband strategies: e.g. Sweden, Australia, Japan, Korea, France, the Netherlands, Singapore. In these countries, X % of the residents have access to broadband speeds of Y at Z price. He then recommended:

“We suggested that, at a minimum, the United States must keep pace with Japan, South Korea, France and other leading nations that are developing next generation networks with bandwidth capacity of 100 Mbps. Toward this end, we recommended that the President appoint a broadly representative blue-ribbon task force to take the lead in developing a national broadband strategy.”

In Baller's view, fiber is the preferred connectivity medium. On that standard, Japan has fiber to the home ("FTTH") for 80% of its residents. Other countries have set 100M and 1G speed objectives, presumably with fiber connections. On the other hand, U.S. telecommunications providers are content with cable, DSL and fiber to the node (neighborhood) strategies, leaving copper with and without DSL engineering to cover the "last mile" to the home.

There have been more ambitious broadband goals advanced in the U.S. in the past. These goals – the Bush commitment to broadband everywhere in the U.S. by 2007, the TechNet goal of 100Mbps to 100 million homes and small businesses by 2010, and the CENIC goal of "1G or Bust" in California by 2010 – were mere proposals and not commitments. In Baller's view, U.S. broadband policy is the sum of the business plans of AT&T, Verizon and Qwest limited by the objectives supported by Wall Street. These are simply private sector business interests, not proper public policy for the country.

He therefore comes up with the following "Eight Bold Steps":

1. Create a critical mass of support for a national broadband policy.
2. Enact federal legislation to begin an assessment and implementation process.
3. Appoint an independent "Blue Ribbon" commission to make recommendations.
4. Establish preliminary goals within the context of a practical work program.
5. Gather pertinent information on existing and planned communication networks.
6. Exchange, circulate, discuss and refine the information that was collected.
7. Develop a report and recommendations.
8. Create legislation to implement the national broadband strategy.

### **Some Initial Reactions to the Baller Essay:**

There is a good deal to be learned from the examples cited by Baller. It would be helpful to know how these broadband plans in other countries were constructed. By whom, when and for what reason was the analysis undertaken? Was there an analysis of the location, speeds, costs and usage of existing broadband capacities? Was there concern for economic development, educational or healthcare inefficiencies or shortfalls because of the absence of broadband? What conditions were these countries attempting to improve or correct through broadband infrastructure investments? Did they see a need for affordable devices to access the broadband? Did they see the need for a comprehensive need for education and training? What metrics did they develop to measure their return on investment ("ROI") on their broadband investments? What roles in these deployments were played by the public sector, the private sector and public/private partnerships? Were there divisions of responsibilities among these groups for design, capital finance, construction, ownership, maintenance, applications/uses and education and training? How did Sweden, for example, marry the interests of Telia (the national incumbent) with the many municipalities that constructed/financed the fiber infrastructure which was made available on equal terms to all service providers.

I think that there is one of his steps that deserves particularly careful consideration. It is the one where he recommends that each major sector of the American economy identify the facts, opportunities and challenges relevant to the improvement of conditions in that sector. Connect Kentucky has followed that approach at the county level by promoting broadband strategies to advance performance objectives in: K-12 education, business and industry, higher education, libraries, non-profits, recreation and parks, government, agriculture and healthcare.

Finally, it is important to remember that it is the role of the Illinois Broadband Advisory Council to propose actions and programs that can be undertaken by the State of Illinois, although with consideration of other policies that might be undertaken at the national and local levels. The Baller “Eight Steps” could be adapted to Illinois.

### **Policies at the Federal Level:**

I don't see the United States adopting national policies similar to those developed in Japan, South Korea, Singapore, Sweden or France. It might have been possible when AT&T was the de facto national telecom provider. However, since the divestiture in 1984 and the diverse telecom technologies that have developed over the years, we have a largely deregulated communications system with decreasing importance to “legacy” copper and old system regulations. We are in a transitional phase at present. But this is an area where the federal role is to provide guidance and encouragement to the states.

It is likely that national legislation will be passed prohibiting states from denying local government participating in telecommunications other than discriminating against the private sector. There is pending legislation that would provide funding to enable states to map, assess conditions, identify gaps in affordable connectivity and to plan broadband deployment and uses. It would be helpful if there was a federal infrastructure insurance coinsurance program- like FHA mortgages with rapid depreciation and investment partnership deal structures, or R&D investments – to give local governments access to credit for broadband systems. HUD CDBG funds could be used for broadband investments. But there has been no talk of the type of government operating or subsidy programs that have been important parts of national programs in other countries.

The Markey and Inouye/Durbin bills are the principal legislative options on the table. They have two important features. The first is to provide funding for capacity mapping, the identification of service gaps and broadband planning at the state level. The local implementation of this legislation is where Illinois should be concentrating its efforts. The second involves limits on state prohibition of municipal participation in the delivery of broadband services, allowing that decision to be made at the local level based on local telecom conditions and the economic development needs of local government as decided upon by local residents.

Illinois should be on top of these various federal legislative initiatives and be prepared to develop state implementation strategies as soon as the federal legislation is passed. It will be to Illinois' advantage to take prompt advantage of this legislation.

### **Some Existing State Initiatives to Consider:**

In 2001, the E-NC Authority came up with a program to determine the status of and to promote broadband deployment and use in its rural areas. That led to some subsidy of infrastructure in distressed rural areas, to the support of broadband promotion efforts in rural counties, to creating small business incubator “telecenters” around the state, and to establishing focus groups on whether or not and how broadband could be deployed in “distressed urban centers.” All of these initiatives were funded by the State of North Carolina as efforts to bring broadband to all the counties in North Carolina and to improve the economic conditions in rural counties.

In 2003, Connect Kentucky was created with similar rural objectives, but in addition to have broadband universally available in the state by 2007. The Connect Kentucky program involved broadband capacity mapping, determining gaps in coverage, the development of county “blue ribbon” broadband committees, the evaluation of current broadband use in each of nine economic sectors of the local economies of each county, and county broadband implementation plans. They have started the type of “transfer, circulation and discussion” functions Baller describes in Step 6 of his Eight Step Program. In particular, they have developed an “E-Health Newsletter” that describes achievements and innovations in healthcare in the 120 Kentucky counties. Similar newsletters can be developed in the local government sector to describe efficiencies in parking and moving violation collections, meter reading for water and other utilities, code enforcement and a host of other local government functions. In effect, Kentucky has developed a “system” to record and disseminate broadband related innovation in all sectors of local economies. Connect Kentucky has led to similar “Connect” operations in Tennessee, West Virginia and in a national group called “Connected Nation.”

Michigan created a Michigan Broadband Development Authority, funded by the Michigan State Housing Development Authority (“MSHDA”), with a limited ability to finance local broadband infrastructure. Almost every state has a state housing finance agency that was created to support affordable housing that could sponsor – like Michigan – the development of local broadband deployment in distressed areas.

There have been numerous “task forces” to study the needs and opportunities for broadband in states around the country. Baller refers to the California Broadband Task Force that was created by Governor Schwarzenegger and its function to:

“(B)ring together public and private stakeholders to remove barriers to broadband access, identify opportunities for increased broadband adoption and enable the creation and deployment of new advanced telecommunication technologies.....The Golden State must remain competitive in the telecommunication revolution so that we can continue to attract the best, the brightest and the most creative workforce in the world. Broadband will help build California so we can grow our economy, create new jobs and stay ahead in the global marketplace.”

The first thing that Illinois should do, after fully understanding the nature and timing of federal support for state broadband initiatives, is to fully understand what other states have done and are planning in this area, and the organizational structures and funding mechanisms used to support these initiatives.

### **Illinois Has Not Been Standing Still – Much Can Be Learned From Past Efforts:**

There has been a Broadband Deployment Advisory Board meeting for two years. They have had meeting minutes summarizing their discussions. They have had a discussion “wiki” where comments have been posted and discussed. These materials should be reviewed and summarized. What were the expectations when this group was created? Was there a staff? Was there a budget? Were they to do research and prepare analyses? Were they to submit a report? What was to be done? By whom? For whom? In anticipation of what future action? The point is to assemble what has been done because it can provide a useful record of what “blue ribbon” type individuals have discussed with respect to the deployment and use of broadband in Illinois.

There have been Digital Divide funds of various sorts from the time of the Ameritech/SBC merger in 1998 and the creation of the Illinois Community Technology Fund, through various DCCA and DCEO programs over the years. Were they tied in any way to broadband? Or were they simply created to provide access and education? Are there ways they could be repurposed at this time to illustrate the benefits of broadband?

There was also a Rural Broadband grant program that was established in the past. What was it to do? What were its objectives? How were decisions to be made on how, to whom and why the grants were to be allocated. I believe this is the source of funds which were transferred to DCEO in order to fund whatever broadband mapping, assessment and deployment efforts are now being considered. Is there anything in the files that can suggest how these funds can or cannot be used at this time?

Finally, what can be learned from the Ameritech/SBC merger and various Telecom Rewrite bills over the years? Is there anything in the discussions of the Illinois Century Network (“ICN”), the e-rate, “Universal Service,” or by the Illinois Commerce Commission that can be useful in our consideration of broadband strategies at this time?

### **Baller’s Revised Next Steps Would be a Good General Model to Follow in Illinois:**

First, it would be useful to review carefully the record of the current Broadband Advisory Board, and to survey its members and contributors, including focus groups, on how they would proceed to develop a broadband strategy for Illinois.

Second, Illinois should fully understand the efforts made by other states around the country through the work of their Task Forces. California took the lead in developing Digital Divide programs out of the PacBell/SBC merger in 1997. They appear to have taken the lead in their Broadband Task Force efforts during 2007 and in the work done by

SSRI on their recent report on the economic impact of broadband on California cities and industry sectors. This work was relatively high level. It didn't discuss any of the "intermediate steps" like education, training, hardware and software that would be necessary to enable the broadband deployment to achieve the projected economic benefits. It's likely that valuable insights will be gained when the results of various "Task Forces" around the country have been reviewed and conversations held with the individuals responsible for managing and monitoring the deliberations.

Third, it would be helpful to review the approaches taken by other countries in developing their broadband policies. While this work would more logically be done at the national level, a good deal of insight could be gained quickly through Internet research and phone calls. I would think that this work has already been done.

Fourth, we should review with care the work done by the e-NC Authority, Connect Kentucky, SI Connect and the various new, second generation work done by Connect Kentucky in Tennessee, West Virginia and through Connected Nation. I think it would make sense to either put out an RFP or to do sole source contracting to get the best information from these groups from their prior experiences. In the case of Connect Kentucky, Illinois should now how: to develop the spirit of a public/private partnership in accessing capacity and planning information from providers; to develop maps of providers, capacities and costs; to document usage patterns; to organize broadband applications and uses by functional areas and industry sectors – as Connect Kentucky did; to develop local broadband "Innovation Teams" in both counties and cities; to set goals and objectives by functional area as SI Connect did; and to set up the operational structure, work program and budget for this work to be done in 2008.

Fifth, the greatest benefits in broadband in Illinois will come from the effective uses of broadband and the Internet by all of the industry sectors organized by Connect Kentucky: pre-school, K-12, supplemental education, workforce development, online skills training, government services, agriculture, healthcare, tourism, libraries, etc. If each of the counties or cities in Illinois were to consider their local economies in terms of expenses, revenues or comparative advantage, they could consider ways in which combinations of broadband, the Internet and websites could create maximum benefit in terms of economic development or quality of life. If Illinois had as its objective being the most effective and creative "user" of broadband in the country or world, economic and quality of life benefits would surely follow. This would make Illinois distinctive.

Sixth, the most direct way of translating broadband investments into economic benefits to Illinois would be to make sure that all local chambers, economic development and tourism boards could bring to their members first-rate instruction in how broadband, interactive websites and Internet Marketing could be used by members to increase their markets, revenues and profits. A good deal of the instruction could be provided online through interactive websites, webinars and e-learning. This area could become a specialty field in which community colleges could provide classroom training to supplement the online training. The only way that a local economy can be grown by broadband is to promote efficiency, productivity and innovation by its local businesses.

## Community Networks and the Evolution of Civic Intelligence

(To be printed in *AI & Society*)

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*Maybe it's like Casey says. A fellow ain't got a soul of his own, just a little piece of a big soul, the one big soul that belongs to everybody...*

- the character of Tom Joad in *The Grapes of Wrath*, John Steinbeck

### Abstract

Although the intrinsic physicality of human beings has not changed in millennia, the species has managed to profoundly reconstitute the physical and social world it inhabits. Although the word “profound” is insufficient to describe the vast changes our world has undergone, it is sufficiently neutral to encompass both the opportunities — and the challenges — that our age provides. It is a premise of my work that technology, particularly information and communication technology (ICT), offers spectacular opportunities for humankind to address its collective problems. The problems themselves are equally spectacular: war and militarism, poverty, environmental depletion and destruction, disease, etc. and lack of successful alleviation may prove catastrophic. Humankind’s problems won’t be solved by elite fiat, by chance, or as a side-effect of the “free market.” To address these challenges effectively and appropriately “civic intelligence” will be required.

This paper is designed to explore the relation between community networks and the nascent concept of civic intelligence. Civic intelligence describes the capacity of society to consciously adapt to its environment and shape a future environment that is healthy, equitable and sustainable. Although individuals contribute to civic intelligence, the concept describes a phenomenon that is *collective* and *distributed*. This paper argues that community networks were an important manifestation of civic intelligence in the early days of the Internet revolution. It further argues that a theory of civic intelligence can be used to account for the declining influence of traditional community networks and to provide useful prescriptions for renewed vitality and influence of community networks in the future.

### Key words

Civic intelligence, Community networks, Information and communication technology, Intellectual tools, Mental model, Social capital, Seattle Community Networks

### 1. Community Networks

No definition of community networks has ever been universally embraced. Since the beginning of the community networking movement, generally considered to be with the Cleveland Free-Net, many generalizations can be made about projects that self-identified as community networks or Free-Nets circa the 1990s. This self-identification helps to place projects like Seattle Community Network and Blacksburg Electronic Village (both projects, Silver, 2004) into a recognizable category. What it doesn’t provide is assistance in characterizing socio-technical endeavors that embrace some aspects of community networking without necessarily subscribing to an overall community network orientation. Projects that demonstrate community networking without consciously identifying themselves as community networks are, however, natural allies of community networks and should ultimately factor into any discussion of reinvigorated civic intelligence in relation to community networks.

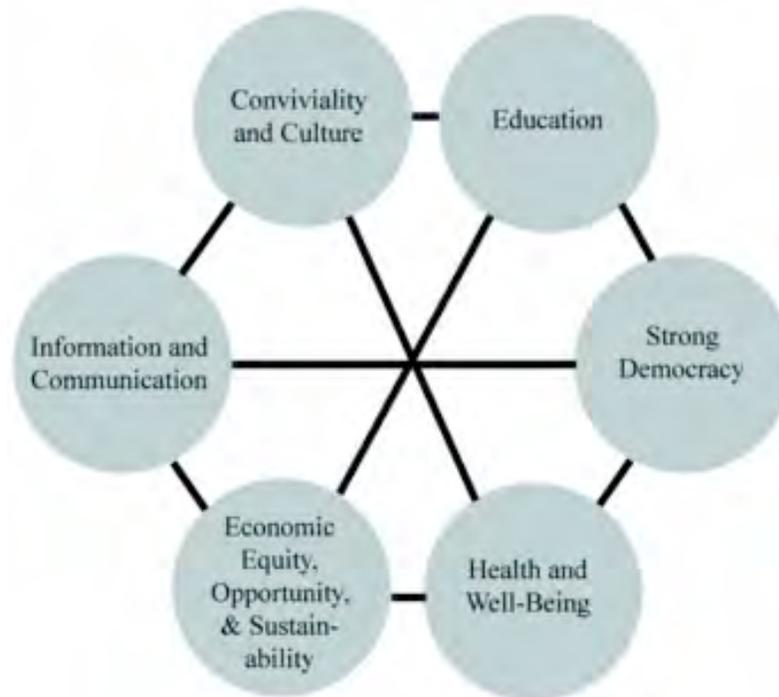
Community networking advocates embraced the promise of the Internet for increased empowerment but applied the concept to the development of the local, geographically-based community. This significant idea was gaining prominence in the early

1990s due to the influence of authors like Howard Rheingold who, although not focused on local communities, popularized the idea of communities in general, especially “virtual” ones, being supported through the Internet (Rheingold, 1993). Tom Grundner, the founder of the Cleveland Free-Net, consciously attempted to build upon other well known civic models such as the American public library and public (television) broadcasting systems (Grundner, 1994). The community networking community, working primarily on a volunteer basis in hundreds of communities worked in numerous ways to make their visions real. Ironically, however, although proponents had a broad public vision, seeking public funding was often rejected as a strategy by community networking proponents for a variety of reasons, including the omnipresence of the “new economy” ideology and residual attitudes from the anti-establishment 1960s.

In this paper, the past tense is used to discuss community networks. Although many community networks still exist, this paper is, to some degree, looking backwards at an era in which community networking had higher visibility than they do today. For over a decade, community members and activists all over the world, often collaborating with other local institutions such as local colleges and universities, K–12 schools, governmental agencies, public libraries, or nonprofit organizations, developed computer-based community networks. In fact, by the mid 1990s, there were nearly 300 known operational systems in the U. S. with nearly 200 more in development around the world (Doctor and Ankem, 1995; Schuler, 1996) and the number of registered users exceeded 500,000 people worldwide. Unfortunately user demographics for the aggregate are nearly impossible to obtain: the worldwide explosion of efforts coupled with a lack of a universally shared concept of what a “community network” is confounded efforts in this direction. Innovative examples could be found in Europe (Amsterdam (Lovink and Riemens, 2004), Milan (de Cindio, 2004) and Barcelona, for example), Japan, and Russia, where the development of civil society was an urgent matter after the abrupt breakup of the Soviet Union. These community networks (sometimes called civic networks, digital cities, Free-Nets, community computing-centers, or public access networks), some with user populations in the tens of thousands, were often intended to advance social goals, such as building community awareness, encouraging involvement in local decision-making, or developing economic opportunities in disadvantaged communities.

In my book *New Community Networks* (1996) I postulated that every community has systems of “core values” that help maintain its “web of unity” (MacIver, 1970). These six core values—conviviality and culture, education, strong democracy, health and well-being, economic equity, opportunity, and sustainability, and information and communication (Fig. 1) are all strongly interrelated: Each core value strongly influences each of the others — positively or negatively (Schuler, 1996). It has long been known, to illustrate the interconnectedness of the core values with just one example, that the higher an individual's education and economic levels, the higher the amount of his or her political participation will be (Greider, 1993; Goel, 1980). Strengthening community core values, therefore, is likely to result in stronger, more coherent communities.

### Community Core Values



**Figure 1.**

Broadly speaking, the community network's services are intended to support the core values of the community. Some possible community network services based on these core values are listed below (Fig. 2). A community network supports these core values by supporting the information and communication needs of smaller communities within the larger community and by facilitating the exchange of information between individuals within these smaller communities (creating what Putnam calls "bonding social capital" (Putnam, 1995)) and by encouraging the exchange of information among communities ("bridging social capital"). Another objective is to aggregate community information and communication thus focusing attention on community matters. This is addressed in a variety of ways by community networks: through discussion forums; question and answer forums; electronic access to government employees, services, and information and access to social services; electronic mail; and in most cases, basic Internet services, including access to the World Wide Web and Usenet news groups. Some community networks from the 1990s highlighted related work - such as community radio development - and policy issues specifically related to community communication. The most important aspect of community networks was their potential for increasing participation in community affairs. Since the Internet's original design made little distinction between information consumers and producers, the Internet itself helped spur idealism among community network developers that outpaced reformers and critics of traditional media such as newspapers, radio, or television.

Community networks in the US were local and independent. Although many were originally affiliated with the National Public Telecomputing Network (NPTN), the now-defunct organization that helped establish a large number of community networks—Free-Nets in NPTN's terminology (Grundner, 1993), other organizations, such as the Association For Community Networking (AFCN) in the U.S., the European Association of Community Networks (EACN) and the CAN (Community Area Networks) Forum in Japan were launched to support the community networking movement. Although these organizations were created for that purpose, the theory and practice of the idea of stronger and closer relationships between individual community networks was only minimally explored. There have been hopeful signs that a community networking "movement" linking those efforts would develop but, so far, this has not been realized. Global community networking congresses were convened in Barcelona, Spain (2000), Buenos Aires, Argentina (2001) and Montreal, Canada (2002). Computer Professionals for Social Responsibility (CPSR) sponsored symposia on "Shaping the Network Society" in Seattle in 2000 (Schuler & Day, 2004; Day and Schuler, 2004) and 2002 (Carveth et al, 2000). Perhaps most significantly, "global community networks" proponents have

begun to engage with the United Nations International Telecommunications Union as a potential civic sector advisee in the UN 2003 and 2005 "Information Society" summits.

### **Example Services for a Community Network**

#### **Conviviality and Culture**

- Forums for ethnic, religious, neighborhood interest groups
- Recreation and parks information
- Arts, crafts, and music classes, events, and festivals
- Community calendar

#### **Education**

- On-line homework help
- Forums for educators, students
- Q&A on major topics
- Distributed experiments
- Pen pals
- Online tutorials

#### **Strong Democracy**

- Contact information for elected officials - "Ask the Mayor"
- E-mail to elected officials and to government agencies
- Forums on major issues
- On-line versions of legislation, judicial decisions, regulations, and other government information
- Deliberative systems

#### **Health and Well-Being**

- Q&A on medical and dental information
- Alternative and traditional health care information
- Community clinics information
- Self-help forums
- Public safety bulletins
- Where to find help for substance abuse, etc.
- Resources for the homeless; shelter information and forums
- Pollution data

#### **Economic Equity, Opportunity, and Sustainability**

- Want ads and job listings
- Labor news
- Ethical investing information
- Job training and community-development projects
- Unemployed, laid-off, and striking worker discussion forums

#### **Information and Communication**

- Access to alternative news and opinion
- E-mail to all Internet addresses
- Cooperation with community radio, etc.
- Access to library information and services
- Access to on-line databases
- On-line "Quick Information"
- Access to on-line periodicals, wire services
- Free web space and online publishing applications

Figure 2

Looking back, we see that community networks have almost always had a difficult time financially. Public interest and sporadic infusions from the government, businesses, and foundations helped to alleviate some of the financial problems with some of the systems. For example, in Texas, the Telecommunications Infrastructure Fund, the largest ever in the U. S., devoted over one billion US dollars in a short-lived initiative to launch 200 community networks and other projects. This effort was a major exception, however: very few community networks - in Texas or elsewhere - have been adequately staffed or have had adequate office space, hardware, software, training programs, or telecommunications infrastructure. In many of the

government supported efforts, nearly all of the funding went to technology and infrastructure with little to no thought being given to staff support, training, or public education.

## **The Decline of Community Networks**

Community networks were an early attempt to stake a civic claim in cyberspace. What has occurred that supports the view that community networks are in decline in cities across the United States? Although community networks grew rapidly in popularity, they did not become a significant part of the Internet that exists today. Since its inception until the early 1990s the Internet had been relatively stable from a policy standpoint. Until the early 1990s, for example, all economic activity was prohibited. People not associated with the high-tech industry, academia, or the government did not have access to the Internet, and, as unbelievable as it seems to us today, the web was still virtually unknown. It was within this gated environment that the Free-Nets and community networks were born.

Many early community networks adapted dial-up, non-Internet based bulletin board systems (BBS) style text-only menu-based approaches to information retrieval: “Type 1 for government information, 2 for library, ...” etc. As clunky as this seems today, in the rich — yet commonplace — graphic environment of multiple windows and links to new pages a mouse click away, this interface was appreciably more user-friendly than the text-based UNIX environment that was nearly inseparable from the Internet at that time. A few years later, when the web exploded onto the scene, the user interface of the traditional community network became antiquated nearly overnight and the vast majority of community networks migrated to the web within a few years. At roughly the same time, some of the original reasons for using a community network were being replaced by Hotmail and other free-to-use (albeit commercially-motivated) services. The institutional support from the National Public Telecomputing Network (NPTN) faded as the organization slid into financial insolvency and disappeared and the common technological and organizational base that had been shared by many community networks also vanished. Without this shared identity — and the electronic connections that were built around it — the community of community networks quickly evaporated. The question that we now must ask is whether the movement can recapture some of its lost prominence, and, if so, what could be done?

## **2. Civic Intelligence: A New Paradigm of Thought and Action**

It has long been acknowledged that people’s brains contain a collection of cognitive capabilities that we call “intelligence.” Intelligence is a powerful general mechanism that individual people employ for dealing with the environment and other people as well as with abstract concepts and ideas. Less apparent is the fact that communities and other groups also possess “intelligence.” This collective intelligence is played out in prosaic times and also in times of challenge. It is manifested over the long term through culture, language and institutionalization of values and norms. It is also deeply enmeshed in transient and short-term experience. As Roy Pea (1993) observes, “Anyone who has closely observed the practices of cognition is struck with the fact that the “mind” never works alone. The intelligences revealed through these practices are distributed across minds, persons, and the symbolic and physical environments, both natural and artificial.” In fact it’s not clear exactly where intelligence is located. Is the information that Google unearths in its cyberspace expeditions part of “my” brain? Many times it’s easier to retrieve information from the web using Google even if the same information exists (somewhere) within my own brain.

Civic Intelligence describes the capacity that organizations and society use to find solutions to environmental and other challenges collectively. Civic intelligence represents *potential* — not unlike Putnam’s concept of social capital (1995). Civic intelligence is creative, active, non-deterministic and human centered. This perspective significantly contrasts with most theories of social change. It places people — not abstract systems or very general historic forces — at the core. Civic intelligence combines community (or “bonding social capital” (Putnam, 1995) with civic (“bridging social capital” (Putnam, 1995)) networking. The choice of the word “intelligence,” moreover, was motivated by its correspondence to cognitive capabilities in individuals. Although a slavish commitment to every conceivable analogy is unlikely to be warranted it is anticipated that fruitful analogies between individual and collective intelligence can be made and the initial models support this

supposition. Also, it should be pointed out, that although civic intelligence highlights the role of cognition, it is not intended to deny the reality of emotions and other largely non-cognitive aspects of human behavior. At this evolving stage of the concept, it's enough to note that the non-cognitive aspects are important to individual human behavior and probably also to collective behavior as well. These aspects shouldn't be ignored in a civic intelligence enterprise for long.

Civic intelligence uses available tools in appropriate ways. These would certainly include communication and information systems including environmental monitoring systems and discussion and deliberation systems. Yet civic intelligence requires intelligent — and concerned — *people*. Technology by itself will not solve humankind's problems. Civic intelligence incorporates principles such as inclusivity, cooperation, justice, sustainability and other notions beyond that which a simplistic measure of intelligence implies. The most important aspect of civic intelligence is that it can be improved. No system is perfect, nor totally "rational." Fundamental limits to human understanding always exist, yet our approach to the world of nature and to each other can become more enlightened.

### Requirements for the Concept of Civic Intelligence

A literature search of the term "civic intelligence" will reveal several uses. One of the most relevant use was probably in "A Vision of Change: Civic Promise of the National Information Infrastructure" (Civille et al, 1993). Although uses of the term there and elsewhere were generally complementary to the usage expressed here, previous uses were generally informal characterizations rather than as a theme for serious study and focus in their own right.

My exploration of the concept is motivated by the fact that activists, researchers, and other people working on social and environmental issues are actually in some way all *working on the same project*. I am interested in developing intellectual tools that describe this phenomenon in a way that provides insight for people working in fields of social or environmental amelioration, preventing wars, for example, or repairing environmental damage. At the same time, I hope that people build on the idea that they are part of a common project and that they all can contribute to and derive strength from the common project. Ideally this would be a holistic vision that instructs and inspires. Hopefully it would pave the way for increased collaboration and network building across boundaries wherever they exist around the world.

#### Requirements for Civic Intelligence Paradigm

- A paradigm that describes current — and points the way to future — social change work.
- A paradigm that links and motivates social and environmental ameliorization activities - but doesn't constrain them arbitrarily
- A paradigm that is based on the idea that citizens can be actors in social change and that intentional human action can improve the situation
- A paradigm that acknowledges and promotes distributed, collective, flexible, creative and inclusive involvement of people
- A paradigm that is pragmatic, contextual and visionary at the same time; it is built on realities and possibilities
- A paradigm that addresses both the global and the local and seeks to integrate them
- A paradigm that detects and repairs tears in the social and environmental fabric
- A paradigm that challenges and cooperates with existing organizations and trajectories
- A paradigm that builds upon traditional and modern communication and information systems

Figure 3.

Although something which we could call civic intelligence probably does exist, the idea needs to be *socially constructed* in order to become a viable concept intellectually for service in research, organizing and integrating shared work. Hopefully, a broadly inclusive, collaborative exploration will yield models, paradigms, methodologies, projects, and services to support general creation of civic intelligence throughout society. This belief, in turn, implies that (1) community processes that explore the idea should be initiated; (2) viewpoints and findings from related disciplines should be incorporated into the theory; and (3) models need to be developed, tested, evaluated, and then reworked in the near term. This paper endeavors to begin that

process. In the meantime, the broad requirements for this new paradigm promoting civic thought and action are described in Figure 3.

## 2.1 The Significance of Civic Intelligence

While the “proof of the pudding is in the eating” there are aspects of a civic intelligence orientation that make it a hopeful approach. The first is that it is explicitly oriented towards a *dynamic* social inquiry that is *explicitly* directed towards social and environmental ameliorization, not as a vague, always possible but rarely addressed or attained, *side-effect* of conventional social science (Comstock, 1982). The second is that it is intended to be used both as a way to characterize past and present endeavors and as a way to *critique* current efforts and to help envision improved ones. It should hasten, in other words, social and environmental *progress*. Finally, by linking it — at least metaphorically — to models of human intelligence and learning, with attention paid to mental models, learning, communication, and metacognition, for example, an exploration of civic intelligence can be integrated with a variety academic disciplines including education, social psychology, political science, and cognitive science and to concepts such as equity or a healthy environment that are in common usage in the non-academic world as well.

### Emerging Civic Intelligence

Civil society historically has been at the forefront of social movements like human rights, civic rights, women's rights, environmentalism, etc. (Castells, 1997). To many observers (Barber, 1984, for example) the strong participation of civil society will be necessary if problems facing humankind in the 21st century are to be successfully addressed. There is a growing sense that communication, new modes of organizing, and new insights are helping us to address shared problems in new ways. How society uses its civic intelligence in an era marked by rapid change (propelled by new transportation and communication systems) and by daunting challenges of population growth, new diseases, environmental degradation and deadly conflict is becoming increasingly critical. Concomitant to these new circumstances, the extremely rapid growth of new civil society, business, government, and scientific collaborations across traditional boundaries suggests increasing civic intelligence — at least — within some areas of society.

Successful intelligence coexists with and reflects the world in which it inhabits (Calvin, 1996), particularly those aspects of the world that have the capacity to sustain or threaten life. The richness and complexity of modern life, replete with threats and opportunities of all sizes and shapes drives the need for a broad-based civic intelligence. Evidence that the new civic intelligence that our increasingly complex world seemingly requires is mounting. According to the theory of civic intelligence, this would come about as a natural response to an increasingly complex and, possibly, dangerous environment. Incidentally, this conclusion would be valid regardless of whether the environment was actually complex and dangerous or whether it was *just perceived* that way. The number of transnational groups number in the thousands and is still growing exponentially (see Fig. 4) providing evidence that civil society (in some sectors at least) is increasing its capacity for civic intelligence (while governments and business may, in many cases, be *causing* the problems). The diffusion of groups with a civic intelligence perspective worldwide, their agendas, strategies and tactics, are qualitatively different from their predecessors according to various observers. Keck and Sikkink (1998), for example, provide evidence that these new groups are more likely to engage in policy development and multifaceted approaches rather than simply being for or against something. They also show that many organizations are working outside of the conventional reward structures of money and power. For that reason, the importance of those groups can be undervalued by the academic disciplines that are established to deal with them.

## Growth of Transnational NGOs

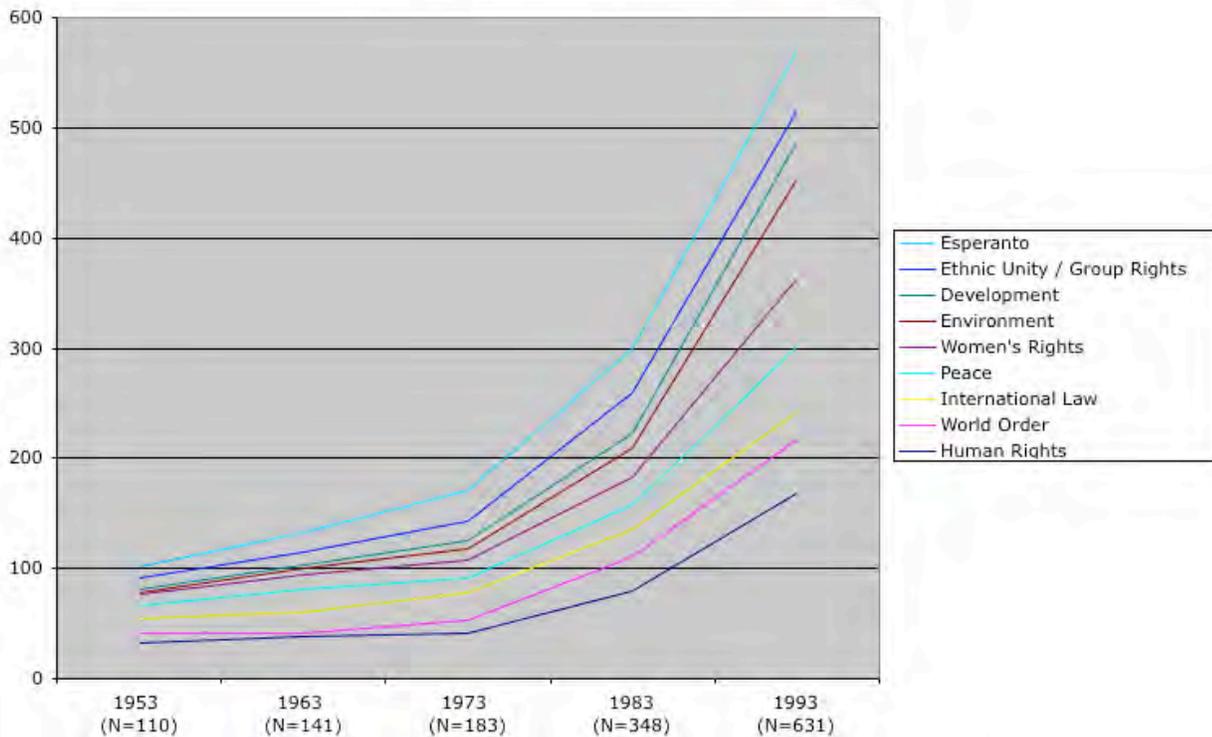


Figure 4.

The rise in the number of transnational advocacy organizations probably echoes the risks posed by the changed and changing environment. At the same time new technology is providing opportunities for information and communication utilization by civil society. This new technology has breached barricades that help maintain civic ignorance while providing new venues for publishing independent viewpoints, developing shared issue frames, and organizing activist communities.

A multitude of new organizations are being launched, devoted to civic causes such as human rights and economic justice. The organizations often develop a networking structure which helps mobilize a critical mass. These organizations are growing in sophistication as well as in numbers. Qualitative differences in new and established organizations are emerging in ways that indicate a richer appreciation of the world and a more sophisticated and more ambitious approach to engagement. Civic intelligence organizations are creating a new "issue environment" that includes changes in number, constitution, and/or diversity of issues under consideration. Accompanying this are vocabulary changes and new framing concepts including "human rights", "sustainability" and "anti-globalism" which are all of relatively recent vintage. New active campaigns are becoming highly visible and references to their work are becoming more prevalent in educational and cultural venues such as literature, schools, museums, theater, art, music, and the mass media. Finally, increased resources, financial and contributed time resources flow to civic intelligence organizations.

### 2.2 Civic Intelligence

The evolving idea of civic intelligence can be used to characterize civic society (and other) organizations. Two models thus far have been developed for this purpose (Schuler, 2004) and obviously, the knowledge gleaned through exercises like this will be used to adjust the models. The first model is a descriptive one which is used to recognize, characterize and, hopefully, guide organizations or other collective enterprises. It a naturalistic way to capture information about an enterprise which can be used to compare and contrast other organizations. A complementary model which identifies functional relationships — how an organization actually operates within an environment — is then described, and a preliminary analysis of the community network movement is performed in a subsequent section.

## **Descriptive Model**

In an earlier paper (Schuler, 2001) I discussed six areas in which civic intelligence projects can be characterized and how a project that demonstrated effective civic intelligence would differ from one that didn't. The six categories (*orientation, organization, engagement, intelligence, products and projects* and *resources*) are described below using language and terminology adapted from the original paper. We begin with definitions:

*Orientation* describes the purpose, principles and perspectives that help energize an effective deployment of civic intelligence.

*Organization* refers to the structures, methods and roles by which people engage in civic intelligence.

*Engagement* refers to the ways in which civic intelligence is an active force for thought, action, and social change.

*Intelligence* refers to the ways that civic intelligence is manifested through learning, knowledge formulation and sharing, interpretation, planning, metacognition, etc.

*Products and Projects* refers to some of the ways, both long-term and incremental, that civic intelligence organizations focus their efforts. This includes tangible outcomes and campaigns to help attain desired objectives.

*Resources* refers to the types of support that people and institutions engaged in civic intelligence work need and use. (The resources they *provide* would be discussed in *Products and Projects*, above.)

### **Orientation**

Thriving civic intelligence stresses values that support social and environmental meliorism while acknowledging and respecting the pragmatic opportunities and challenges of specific circumstances. Central to the idea of a thriving civic intelligence is that inclusive democratic mobilization and strengthening of the civic sector will be necessary to address the primary issues of social inequities, human suffering, environmental devastation, and other collective concerns including the social management of technology. Castells (1998) describes how the civic sector is responsible for initiating the major social movements of our era, including environmentalism, the peace movement, civic and human rights movements and renewed emphasis on feminism. The civic intelligence orientation is toward moving beyond the present status, accepted norms and reward systems. As Margaret Keck and Kathryn Sikkink in their book *Activists Beyond Borders* (1998) state, networks of activists can be distinguished from other players in international, national, regional and local politics "largely by the centrality of principled ideas or values in motivating their formation."

### **Organization**

This project is global. Since the purview and resources of this project are distributed throughout the world, global "civic intelligence" is also distributed all around the world. The global civic intelligence project likewise needs to be undertaken "everywhere at once" in order to be successful. But how should this massive effort be organized? There is no central force or institution possessing the full set of skills, resources, or authority necessary to direct the effort. Moreover, the idea of a centrally controlled hierarchical organization is antithetical (and unrealistic) in this global project plan. The organizational structure of global civic intelligence becomes a vast network of people and institutions all communicating with each other and sharing information, knowledge, hypotheses and lessons learned. This network is necessarily composed of dissimilar institutions and individuals who cooperate with each other because they share values and commitments to similar objectives. Neither authoritarian directives nor market transactions provide the adhesive that could hold this evolving, shifting, growing ensemble together. The glue that binds it is a composite of values and commitments.

### **Engagement**

Engagement is both a tactic and a philosophy. Engagement as a tactic means that the elements of the civic intelligence networks do not shy away from interactions with the organizations or institutions or ideas or traditions that are indifferent or opposed to the objectives of the network. These organizations may be promoting or perpetuating human rights abuses or environmental damage. They may also be thwarting civic intelligence efforts by preventing some voices and viewpoints from

being heard. Engagement, of course, assumes many forms. An organization that employs civic intelligence should, as we might expect, behave intelligently. The nature of the engagement should be principled, collective, and pragmatic. Engagement represents an everyday and natural predisposition towards action; it represents a challenge and an acknowledgment that the status quo, is not likely to be good enough. Engagement, ideally, is flexible and nimble and it is appropriate for the situation. Timing plays an important role in appropriate engagement. Research and study also have critical roles to play, but they must not be used as a substitute for action, postponing engagement while waiting for "all the facts to come in." (See [Rafensperger 1997] for a thoughtful approach to integrating thought and action.)

## **Intelligence**

Intelligence implies that an appropriate view of the situation exists (or can be constructed) and that appropriate actions based on this view can be conceived and enacted on a timely basis. (How this happens is explored a bit more in the functional model section.) Clearly, the creation and dissemination of information and ideas among a large group of people is crucial. Learning is important because the situation changes and experimentation has shown itself to be an effective conceptual tool for active learning. Therefore, some of the key aspects include: (1) multi-directional communication and access to information; (2) discussion, deliberation, and ideating; (3) monitoring and perceiving; (4) learning; (5) experimenting; (6) adapting; (7) regulating; and (8) metacognition.

Let's briefly touch on one aspect of intelligence — monitoring — and some examples of new civic uses. Technology ushers in both challenges and opportunities. We find, for example, that at the same time our technology (fueled largely by economic imperatives) is creating vast problems, it is also introducing provocative new *possibilities* for the civic intelligence enterprise. One recent innovation, a system employing seven earth orbiting satellites, enables us to monitor earth's vital signs from space (King and Herring, 2000). While the system doesn't specify what the earth's inhabitants will do with the data, it's clear that systems like that can improve our picture of the state of the earth. This type of surveillance can expose other events to public scrutiny; it was the French "Spot" satellite which first alerted the world to the Chernobyl disasters. Also unlike previous enterprises this project makes its data readily and cheaply available to people all over the world.

## **Projects and Products**

Projects — both campaign and product oriented — help to motivate and channel activity. An extremely wide variety of projects is important within the context of cultivating a civic intelligence. There is ample evidence that the "project" is necessary to marshal sufficient force to accomplish the desired goals (Keck and Sikkink, 1998). One such example is the manifesto or declaration that communication activists have been developing in recent years, often in conjunction with conferences. These collective statements offer a distillation and articulation of their beliefs, objectives and services which they hope will then be used by themselves to help motivate and inform future projects and products.

## **Resources**

Adequate resources, including paid or volunteer labor, time, money, physical facilities, communication capabilities, and focused initiatives for people and institutions are necessary but not sufficient for effective civic intelligence. Although it would be difficult to measure the magnitude of the need for these resources the overall project can't wait until all the "necessary" resources are at hand before starting. At the same time, helping to ensure that adequate resources do exist is critical for the project.

How each of these characteristics in these areas was originally developed and how it changes over time is a product of interaction internally and with the environment. These interactions are discussed with the functional model in the next section.

## **Functional Model**

The functional model of civic intelligence (Fig. 5) attempts to present how civic intelligence can be generated through interactions. Note that it focuses on what happens, not *how*. Obviously one of the upcoming tasks of this enterprise would be developing a *structural* model that describes how these functions are — or could be — accomplished.

The functional model is divided into three main components, an external component, an internal component and a “core” within the internal component. The functionality expressed in this model is a result of the interactions between these three components, which are all expected to change over time. The “environment” in the model corresponds to the “environment” of the entity being considered. The term is intended to be used in a very broad sense. It includes any factor that influences the organization and is external to it. To a community network, for example, the environment might consist of people in the community, local funding agencies, other community organizations, policies, etc. The internal component corresponds to the organization itself. In the "middle" of the internal component (the organization itself) another component exists — the "core." The core contains the knowledge, formal and informal, tacit and explicit, human- and artifact-based that guides the thinking and actions of the organization. The “core” corresponds to the “mental model” of the organization (or other entity) and it is analogous to the “mental model” in humans (Bransford et al, 1999).

Functional Model of Civic Intelligence

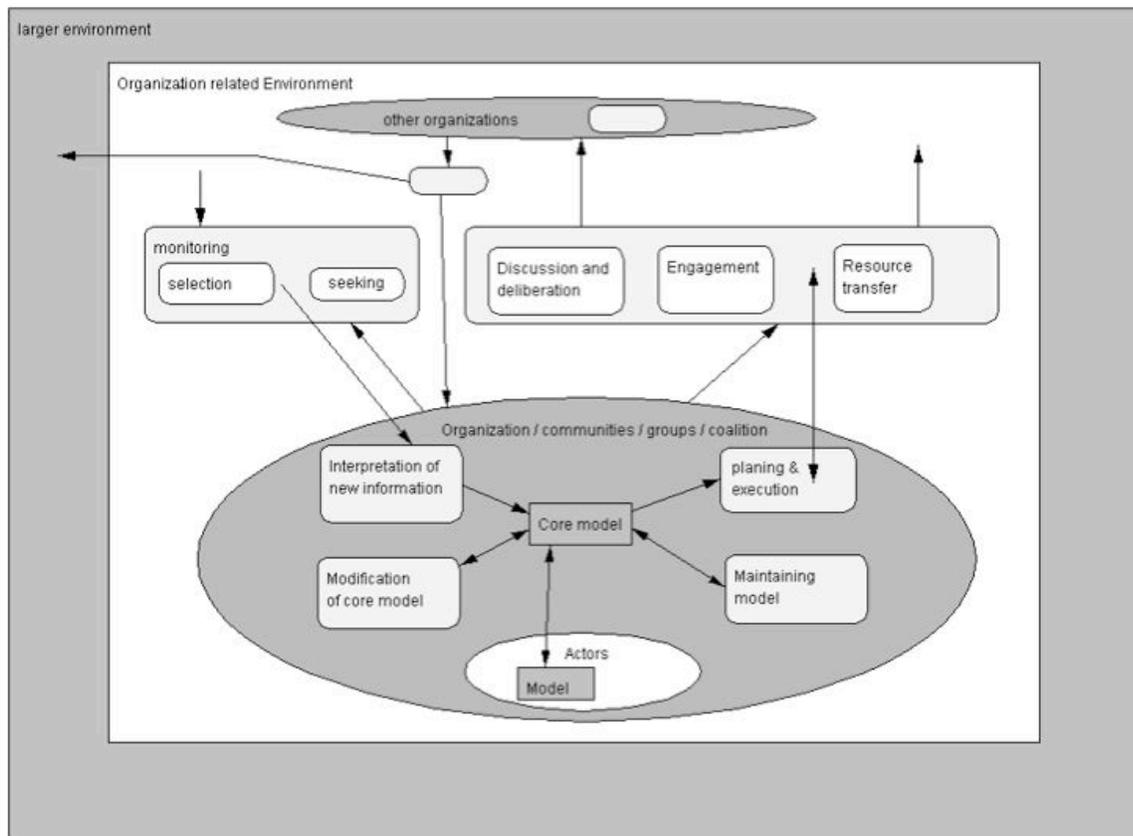


Figure 5.

We have identified four primary means through which the internal component (often an organization) interacts with the external world.

*Monitoring.* This describes how the organization acquires new relevant information non-intrusively. It includes how organizations develop and implement their information seeking and selection techniques.

*Discussion and deliberation.* This describes how organizations (including "virtual" organizations like public policy networks) discuss issues and determine common agendas, "issue frames" (Keck and Sikkink, 1998) and action plans with other entities. The internal component (and its core) of any participants of these interactions can change as a result of the interactions.

*Engagement.* This is how the organization attempts to make changes in the world. This can be done with varying degrees of cooperation and combativeness

*Resource transfer.* This describes how non-informational resources like volunteer and money are acquired from outside.

We have identified four primary means through which the core component interacts with the remainder of the component.

*Interpretation of new information.* This describes how new information is considered and how it ultimately becomes (or doesn't become) part of the core. New information can also be information about the organization.

*Maintaining mental model* (includes resource management). This describes the actions that the internal component consciously and unconsciously undertakes to preserve the viability of its core model.

*Planning and plan execution.* This basically describes how tasks and plans are initiated, carried out, and monitored.

*Modification of core model.* This is basically a reflective exercise where the core itself is examined by participants in the organization and modified.

Note that the eight types of interaction described take place simultaneously, often in relation to each other and apply a variety of approaches within a single type.

### 2.3 Using the Models

One of the most important by-products of a civic intelligence exploration will be a set of techniques for using the civic intelligence models to obtain useful information. This information could be key in evaluating actions or developing future plans. Some of the uses of the knowledge that have been previously discussed include creating strategic plans, inventorying civic intelligence initiatives of geographical regions and/or thematic activist areas, designing curricula, planning campaigns, evaluating effectiveness of initiatives or, even, developing new organizations that would develop public resources to enhance and encourage civic intelligence collaboration.

## 3. Community Networks and Civic Intelligence

In this section, the descriptive model of civic intelligence is used in a preliminary analysis of the community networking movement. It is intended less as an empirically comprehensive analysis and more as an early attempt to apply concepts from the emerging civic intelligence framework. Hopefully it will also be useful in exploring the overall utility of the civic intelligence orientation.

As a response to particular needs and a new niche that was opening up, namely the burgeoning of the Internet, community networks were a strong expression of civic intelligence. At the same time, community networks promoted the growth of civic intelligence. There are at least two types of organizations that should be included within this model study: (1) local community networking organizations such as Seattle Community Network, and (2) organizations whose objective is to help promote the entire community movement (like the National Public Telecomputing Network (NPTN), the Association For Community Networking and the Global Partnerships for Community Networks). As discussed earlier in this article, although self-identified community networks share a “family resemblance,” they were, by no means, identical. Here I focus on the Seattle Community Network at this time after it had made a successful transition to a web-based system, as a “typical” community network upon which to perform this analysis. The six facets of the civic intelligence model are examined below in relation to the Seattle Community Network.

### 3.1 Seattle Community Networks

**Orientation.** The orientation of SCN is best described by the principles (Fig. 6) that the development team created early in SCN's development. This document has helped to provide some “philosophical inertia” to the project. Candidates running for the SCN board of directors often, for example, would use ideas from the principles in their candidate statements. As with other community networks, a strong commitment was made to the local community, primarily through a focus on neighborhoods. Also present were strong commitments to universal access, privacy and freedom of speech for all.

## Seattle Community Network Principles

The Seattle Community Network (SCN) is a free public-access computer network for exchanging and accessing information. Beyond that, however, it is a service conceived for community empowerment. Our principles are a series of commitments to help guide the ongoing development and management of the system for both the organizers and participating individuals and organizations.

### **Commitment to Access**

*Access to the SCN will be free to all*

- We will provide access to all groups of people particularly those without ready access to information technology.
- We will provide access to people with diverse needs. This may include special-purpose interfaces.
- We will make the SCN accessible from public places.

### **Commitment to Service**

*The SCN will offer reliable and responsive service*

- We will provide information that is timely and useful to the community.
- We will provide access to databases and other services.

### **Commitment to Democracy**

*The SCN will promote participation in government and public dialogue*

- The community will be actively involved in the ongoing development of the SCN.
- We will place high value in freedom of speech and expression and in the free exchange of ideas.
- We will make every effort to ensure privacy of the system users.
- We will support democratic use of electronic technology.

### **Commitment to the World Community**

*In addition to serving the local community, we will become part of the regional, national and international community*

- We will build a system that can serve as a model for other communities.

### **Commitment to the Future**

*We will continue to evolve and improve the SCN*

- We will explore the use of innovative applications such as electronic town halls for community governance, or electronic encyclopedias for enhanced access to information.
- We will work with information providers and with groups involved in similar projects using other media.
- We will solicit feedback on the technology as it is used, and make it as accessible and humane as possible.

Figure 6.

The projects that SCN helped support and the organizations that worked with SCN also helped to shape SCN's orientation. For that reason, activist, public library orientation, community education and training, and social capital were all promoted. One of SCN's success stories provided an excellent example of how a community network could exert influence outside of their local communities. Community activists in Penang, Malaysia came across the Sustainable Seattle web pages that featured broad "sustainability indicators" that were intended to demonstrate progress (or lack of progress) towards sustainability in Seattle. The activists were so impressed with the ideas that they launched a similar "Sustainable Penang" project.

**Organization.** As an organization SCN shared many — but not all — characteristics with other community networks. SCN was established in 1995 as a non-profit membership-based organization. Having non-profit status in the US means that people can donate money to the organization and take a deduction in their taxes (which, obviously, is less than the original donation). It also means that the organizers are eligible to write grant proposals to receive money from foundations. Being an SCNA member was not a prerequisite for using SCN; the only benefit from membership was being eligible to vote for board members and being able to run for board positions. As with other non-profit organizations, people would want to become an SCN member if they supported SCN's objectives and believed that their financial support would help SCN meet their objectives. A membership-based organization in principle is quite different from an organization whose actions are determined by its

directors. In a membership-based organization members are expected to play a role in the organization. In this way the *potential* for influence of the organization is multiplied through a (potentially large) membership. In SCNA's case the membership structure was adopted in order to reflect the SCN's community focus. There were other potential benefits as well. A membership organization of some magnitude can have more legitimacy and more political clout than other types. A membership organization of some magnitude could also help provide revenue through membership fees. Members, of course, could help provide time, energy and expertise to maintain and expand on SCN's mission and influence. These assumptions, however plausible they may have been, were never tested in practice. In spite of having a large (1000+) initial membership base (due to offering free memberships), little effort was extended in communicating with and maintaining the membership. Minimally this requires keeping the membership informed about the organization's activities including issues and challenges and volunteer opportunities. Efforts in this direction were sporadic and in recent years consisted almost entirely of yearly funding appeals. Membership data is hard to come by, although it was reported recently (August 4, 2004) that the membership was "around 750." Whatever the membership numbers actually are, volunteering has declined over the year. It seems likely that the "mental model" of SCN's leadership was largely one of a technological — rather than social — project, a common "occupational hazard" of projects involving technology (Schuler, 1996b).

SCN has benefited from volunteer labor for many years. In fact, since its inception, SCN has been run entirely by volunteers. One of the side-effects of being a non-profit organization means that nobody in practice ever gets "fired." On the contrary, volunteers can often come and go at their pleasure. With this type of organization, assigning tasks is often difficult, people can squabble over the "right" to assume responsibility in some given area, and then never follow through with its duties. On the other hand, many tasks never get taken up at all. A shared sense of urgency, a common purpose and a high degree of trust could, in theory, help circumvent these obstacles. Therefore rebuilding these traits should be a high priority. Finally it should be noted that many attempts at partitioning work "rationally" through creating committee structures has been relatively unsuccessful: no structure can compensate for a lack of leadership or individual initiative.

**Engagement.** SCN's engagement with the public and with other organizations and initiatives were sporadic and low-key. An opinion piece in the local newspaper helped to launch the project and a rally against Internet censorship was convened early in SCN's career. Occasionally SCN volunteers were invited to give presentations in public events. (I was an exception to the rule. As SCN's "ambassador at large" and author of *New Community Networks* (1996a) I made numerous — 75 or so — presentations around the world. Unfortunately this was not integrated into the rest of the SCN's outreach or engagement efforts.) SCNA produced a brochure that was made available at all Seattle Public Library branches. Finally, SCNA convened monthly meetings at the public library for several years. Although these were well-attended for several years, the attendance gradually declined and the meetings are now helped occasionally with small attendance. Certainly at this point it was clear that the engagement patterns were not sufficient for maintaining, let alone expanding, the SCN enterprise.

**Intelligence.** Seattle responded early to the opportunities for citizen involvement that cyberspace provided. The original SCN developers involved the community in the project and established a set of principles that explicitly endorsed an orientation that included adaptation and innovation based on the recognition that the environment, including citizen needs, technology, and competing services would change over time.

**Products and Projects.** SCN's most important product (and project) was a community network. This included web hosting, email accounts, distribution lists, and access to the web via lynx. Other products not directly for user consumption included documents such as principles and policy which were used by SCN and, occasionally, by community networks in other cities. SCN volunteers worked with community members to help them post their information on the web and provided training on system use. While there are over 200 hosted community groups on SCN, virtually effort is now being expended to add more. Over the years SCN was involved with — or initiated — other projects such as "Ask the Governor," "Teen-Talk" and a monthly community front page. For several years SCN has sponsored a "Computer Giveaway" project since 1994. SCN's main "product" (beyond the services it offered) was an increased presence and awareness of the Seattle community in

cyberspace. Although SCN ultimately hosted only a miniscule portion of Seattle's community groups on its system, it did provide an aggregating function, partially at least supported through the SCN "brand."

**Resources.** SCN's present mode of operation requires very little in the way of resources. Its technological infrastructure includes computers, disk drives, monitors, modems, etc. SCN relies on an Internet connection provided without charge by the Seattle Public Library for email and lynx (text-only) web browsing. SCNA's arrangements with the library does not allow SCN to provide full Internet access, thus it can't be considered a true Internet Service Provider (ISP). Finally, as mentioned earlier, volunteers are a critical resource, as they perform all of SCN's functions except membership administration.

### 3.2 Community Networking Associations

In this section we will consider the "umbrella" organizations which provided services to community networks to complement their work providing services to geographically-based communities. The principal organizations within the US with this function are NPTN and AFCN. AFCN was formed to fill the gaps caused by NPTN's bankruptcy and demise. AFCN, thus far, has not assumed NPTN's level of influence. Both organizations are briefly described below using the civic intelligence descriptive model.

**Orientation.** The orientation for NPTN and AFCN were similar at a general level; they both promoted community communication and information. NPTN was more oriented towards a type of broadcasting model, whose *affiliates* would contribute to — and benefit from — a focus on specific products like "Academy One" and "Tele-Olympics."

**Organization.** NPTN was organized in a typical non-profit way with an executive director and paid staff. AFCN, on the other hand, is more like SCN. AFCN is open to all and all tasks are undertaken by volunteers. Although both organizations were non-profit, AFCN is a membership organization,

**Engagement.** AFCN is involved in very little direct engagement with people outside the organization. However, since nearly all of AFCN's members are involved with other relevant efforts in a variety of venues, the discussion on AFCN lists, could indirectly promote engagement. Although the relatively low level of engagement seems to suggest a lower degree of civic intelligence according to the basic model, it may be true that the direct engagement spawned through the use of the lists is equal in magnitude to what could have been accomplished directly. An investigation of AFCN's actual and potential "audience" (the part of its "environment" that includes organizations and individual people) would suggest a variety of engagement patterns. Currently AFCN is not actively soliciting new members.

**Intelligence.** The primary vehicle for AFCN is currently its discussion list. This list consists of relevant news, reports, conference information and well as general discussion of issues and problems posed by members. There is no explicit approach to intelligence per se, learning takes place on an individual basis.

**Products and Projects.** NPTN provided much of the "raw material" that one would need to build a "Free-Net" (their specific flavor of community network). This included the "Blue Book" a handy manual for establishing a community network, as well as the FreePort software itself that ran on Unix machines. AFCN offers similar advice through its "Running a CN" section on their web site. AFCN employs "content management" software and thus this section contains individual postings, four on "Starting a CN" for example.

**Resources.** NPTN, as a more-or-less typical non-profit organization employed the usual office with paid staff, etc. and, hence, required financial support. AFCN on the other hand uses volunteers, working at home or office, to accomplish AFCN's tasks.

### 3.3 Using Civic Intelligence to Strengthen Community Networks

The civic intelligence models can most obviously be used to characterize *existing* efforts. Less obviously, but ultimately perhaps more usefully, the models can serve in an analysis of an *ideal* organization or a hypothesized future of an organization. In this section we will explore how community networks could engender more civic intelligence and what types of activities

could help make it happen. It may be possible to reinvigorate the community networking movement by adjusting tactics and other approaches while keeping the basic community networking orientation intact.

The theory of civic intelligence postulates two major patterns of interaction: (1) interaction between the particular manifestation of civic intelligence (an organization, for example) and the environment; and (2) interaction within the civic intelligence entity and the core, the entity's "mental model." People and committees, informed with policy documents, etc. that the organization has developed interact in order to share information, formulate and act upon plans, and evaluate activities. Thus an analysis of civic intelligence and its relationship to the community networking movement should involve an examination of how the environment changed and its effect on the broader community networking movement. It would also examine how the community network organizations interacted with each other as well as the internal interactions taking place *within* their own organizations over time. Broadly we will need to examine the environment, mental models, resources, information exchange, tools and patterns, orientation, shared values, and shared technology.

### **The External Component — A Changing Environment**

As previously discussed, it is clear that the environment that had provided fertile soil for community network development in the early 1990s changed suddenly in the mid to late 1990s. New policies that removed the "monopoly" on public access that community networks had enjoyed left the community networking community (in the US at least) seemingly without a viable product, message or mission. One of the consequences of the environmental change was the atomization of the network of practitioners. Moreover, because of diverging hardware and software platforms, operational models and objectives, the (perceived) need for communication between community network practitioners in other locations was diminished. This was certainly reflected in the Seattle experience. This in turn would have an impact on organizations who helped promote and sustain these discussions. These groups became less central to the movement. Membership became more optional and the main activity of the umbrella organization became discussion support.

### **The Internal Component — Diminishing Resources and Challenges to the Core Component**

With a diminishing role in providing essential services, SCN became less certain as to its objectives. Email and web page hosting services were still provided but it became difficult to maintain high quality technological support while relying solely on volunteers. The onslaught of spam presented multiple challenges to SCN, both technologically and philosophically: Is spam protected by SCN's commitment to free speech? Or, more to the point would users claim that their rights were violated and threaten a lawsuit, if SCNA installed software to delete spam or otherwise interfere with its delivery? SCN did have to face this type of problem when a disgruntled volunteer initiated a lawsuit against the SCN board of directors. Although the suit was ultimately deemed to have no merit, the action profoundly debilitated SCN's ability to act by forcing the board to squander countless hours at a crucial time in SCN's development.

At roughly the same time that the original environment for community networks was undergoing fundamental transformation, volunteer energy at SCN (and other community networks around the US) began to dissipate. Volunteer energy is a resource that can be omitted if paid staff were substituted, but, barring that, the volunteer pool must be reconstituted periodically with fresh recruits. The lack of a coherent shared vision and the inability of SCN to keep current with new technological developments probably aided this decline. (Interestingly enough, the lack of paid staff and the technological base at the time were viewed by some SCN volunteers as project "givens" not as factors that could change.) All of this suggests that it is easier to develop bad habits to break them later. The forces maintaining the status quo are currently larger than the desire and ability to grow. Resources (such as time) are being spent in other ways.

### **Keeping the Faith while Changing the Focus**

In this section we will begin to consider some of the options faced by individual community networks and by organizations who are working to integrate individual efforts and to strengthen the entire effort. It may be possible to identify courses of action that the community networking movement could adopt to help place community networking more prominently on the public agenda. We will briefly examine some of the original functions of SCN (below) and discuss how they could be modified

or approached differently for more effectiveness now and in the future. It is possible that some of SCNA's objectives could be eliminated — perhaps because other organizations in the community are addressing them adequately. It may even be the case that new objectives should be introduced.

- Provide information and communication services such as email and web hosting
- Develop online community resources
- Draw attention to local needs
- Provide public access
- Provide easy to use software
- Promote certain norms and values (via SCN's principles, for example)
- Promote public discussion on information policy issues
- Provide training

The broad goal of individual community networks was building local community by promoting Internet use. This, of course, involves a variety of allied activities like training and policy advocacy. Presuming that the goal is still valid, that communities do have crucial needs that are not being appropriately met, the task is to make recommendations that could assist SCN and other organizations with similar goals. One approach would be to select one or more functions from the list above and delete the others. Another approach would be to continue to acknowledge the original goals while not working in areas in which there was insufficient energy and interest. This approach keeps the *possibility* of a future holistic effort alive while not diminishing other efforts. Although SCN still exists, its prominence as a beacon of digital network-based community networking in Seattle has been much diminished. It can be shown, however, that many, if not all, of the services that SCN provides are readily available in Seattle. The city of Seattle, for example, provides web hosting for community organizations (on the city site). While public access terminals are available in all Seattle Public Library branches.

SCNA's primary task is overcoming the inertia of inaction that currently exists. SCNA's lack of energy makes it unlikely to accomplish any of its goals. The civic intelligence functional model suggests two paths that should be followed to overcome this inertia. The first is diagnosing and repairing internal barriers that are inhibiting progress. This corresponds to the internal component of the functional model of civic intelligence — specifically problems of an incoherent “core” where the “mental model” of the organization is not shared by the principals of the organization. Worse, however, would be the case where the mental model of the organization acts to *maintain* the status quo. In other words, it is directing SCN to be static and irrelevant. If this is actually the case it is time to reexamine the mental model, particularly in relation to the stated principles of the organization and to its capacity to act. This highlights the point that many of the problems facing SCN and other community networks, are *people* problems. From a civic intelligence point of view these could be characterized to a large degree as problems with the “mental model.” That a shared mental model for SCN that helps spur action scarcely exists is fairly obvious given the paucity of projects within SCN, whether collaborative or individual. The declining interest in the project shows that whatever mental model does exist, its appeal is limited and, at any rate, people feel unable to make any positive influence in making the objectives more real.

The second path focuses on redesigning the orientation to more effectively interact with SCN's environment. An intelligent orientation is one which encourages new projects and intelligent types of engagement. For one thing, new projects often attract outside attention and additional resources. In SCN's case, additional resources are likely to take the form of volunteer energy. Although, there are other types of ways to infuse SCN with the resources it needs, volunteer energy is probably the easiest to procure and the easiest to put to work given SCNA's cultural patterns. Discussion and deliberation is another civic intelligence function. For that reason, opening up dialogues with volunteers, information providers, community partners (such as the Seattle Public Library) and with other community groups would also be key to an SCN renaissance. These conversations would help identify potential audience and allies for SCN's work. An important outcome of these conversations would be the initiation of projects such as community indicators, neighborhood assets mapping or pollution monitoring, that SCN could assist. They could also identify software needs such as access to blog software or other relatively newer capabilities which SCN has been unable or unwilling to produce.

Although it is more appropriate — and more realistic — for SCNA to focus on Seattle communities it seems unlikely that Seattle can (or should) do everything itself. Thus it makes sense to think of tasks that need doing that are not specific to Seattle and tasks that can best be advanced through discussions with other like-minded people, including those people who are outside the immediate geographical community. These tasks suggest working with one or more organizations whose basic missions include the ones discussed above. The principals in SCN need to reconnect with national and international organizations, especially umbrella groups to identify common goals and to develop projects such as next generation software services (discussed below) that are supportive of the community networks mission.

The civic intelligence enterprise is intended to be a collective enterprise and, hence, one of the goals of such an enterprise is presenting civic intelligence insights as a useful framework. Community networking activists could attempt to use civic intelligence models for their own benefit. After such attempts, it would be important to gather comments on the usefulness of the models. In this way the models could be adjusted to provide more benefit. One approach would be for SCNA to convene a meeting with specific goals. In this meeting, the civic intelligence models could be introduced — whether or not the entire theory was discussed. Some of the possible goals could include:

- Catalogue aspects of environment

- Identifying tangible and intangible assets

- Engage in self-reflection according to civic intelligence models. Reexamine principles — what would people like to do to advance principles?

- Re-articulate shared model, mission; develop new issue frames

The original functions of community network coordinating groups like NPTN or AFCN are listed below.

- Raise visibility of efforts

- Act as a clearinghouse for motivational, promotional organizing information

- Facilitate information transfer between community networks

- Make policy recommendations

- Provide easy to use software

Which of these original functions still deserves focus? Which have become obsolete or have been taken up by other organizations? Clearly one of the most important roles for an umbrella community networking organization is raising the visibility of its concerns. Communication with the outside environment is critical as it helps get the ideas widely known, promulgated and refined. Moreover it helps foster a community of people with shared interests that can lead to projects that are compelling and influential. Umbrella organizations can help their concerns become more well known through a variety of means. If the communication campaigns are conducted in the name of the organization, the ideas are more likely to be associated with the organization. This can help strengthen the organization and can also provide a “handle” through which additional information can be found; on the web, for example. Umbrella organizations such as AFCN that have scarce financial resources and no paid staff are unlikely to mount significant campaigns. For that reason organizations like AFCN need to get “their” message out indirectly, primarily through the participants on their listserv — who are involved in a variety of organizations and communities — in addition to the direct route via their web site.

As in our discussion of possible directions for SCNA, an explicit discussion of the civic intelligence models could help members of organizations like AFCN consciously build upon a civic intelligence framework. Although people can use ideas from the theory without being familiar with the theory per se, appreciation of the theory as a whole with its motivation and descriptive and functional characteristics described by the models can lead to more coherent analysis, planning and evaluation sessions. Two “cataloging” projects seem important in this regard. The first is identifying the assets that the organization can draw upon. These correspond to the resources in the descriptive model and include tangible resources like money, hardware, software and office space as well as less tangible assets like reputation, expertise, skill, personal networks of members, affiliations, and knowledge. The second “cataloguing” task involves looking at the “environment” or general milieu. As we’ve discussed, this includes laws and policies, grant opportunities, organizations with similar goals (who *compete*) and those

with contrary goals (who *oppose*), as well as the general technological and social environment in which the organization exists.

AFCN is basically an information-sharing organization which does little in the way of engagement. This focus is unlikely to change in the near future so it may be more productive to explore ways that AFCN could create services or products that would be used by their members to engage with people and organizations in their own communities.

One of the previous roles of the original community network movement was developing and distributing suitable software. NPTN's distribution of FreePort is the best example of that. Since the wholesale adoption of the web and the proliferation of commercial services like Microsoft's Hotmail that supplanted the free email service that community networks often provided, this effort has been generally neglected. Can the community networking movement, underfunded and, arguably, in disarray, engage in viable software engineering projects? The open source movement suggests several options in addition to becoming a good candidate in general for long-term collaborations. Rather than abandon this stake in the design of software for communities and democratic institutions, AFCN could initiate a community networking system specification that includes all the functional elements that a twenty-first century community network should contain. Working with the open source software community, it may be possible to specify and develop next generation community systems that support deliberation, search, content management, RSS feeds, dispatches, best practices, publishing, and blogs. This exercise would provide an important focus for the community networking community that could ultimately be adopted by communities. It could also help restore the links — that have been missing for nearly 10 years — between the gingival community networks. Finally, of course, this effort could help open up important links to the NGO community worldwide.

Analyzing a community network or other organization from a civic intelligence standpoint is not likely to result in a definitive agenda for action. Ideally, however, such a product would be more realizable after such an analysis. Refining the models with this goal in mind is an important task. Developing methodologies to determine how best to apply the models to real situations is an important associated task.

#### **4. Conclusions: Planning for the Future**

Community networks are simultaneously a response to a need for civic intelligence and a source of civic intelligence. Although the influence of community networking (in the US at least) has declined in the last decade, it may be possible to reverse the trend to some degree. Community networking advocates may be able to re-establish themselves as leaders by developing shared objectives and projects and by engaging more regularly and effectively and intelligently with their perceived “environment.” If this occurs, people and organizations will seek out community networking information, contribute to the effort, and participate in solving or changing the issues. Therefore becoming leaders or contributing to the efforts of existing leaders helps aggregate ideas and efforts — and helps provide much-needed knowledge. This includes reaching out to people and organizations who are interested in aspects of community networking but haven't thought of their activities in terms of community networking. The evolving civic intelligence paradigm should help the community networking community to come to a better understanding of its situation and plan effective campaigns as a result.

While it can be shown that civic intelligence is increasing worldwide, it is not clear that it will be successful. The threats to civic intelligence and the healthy, humane world it hopes to help create are profound. Indeed, the theory of civic intelligence argues that to a significant degree the rise in civic intelligence has occurred precisely in reaction to the grave threats posed by environmental abuse, militarism and war, national and religious fundamentalism, unregulated capitalism and criminality. Civic intelligence can be used to describe existing projects. It can also be used to envision future projects. Beyond this, civic intelligence can be used as a tool for integrating and expanding ambitious collaborations and for a rallying cry worldwide. A thoughtful exploration of the interrelationship between community networking and civic intelligence should result in more effective manifestations of both.

*While what we call intelligence may be distributed in unequal amounts, it is in the democratic faith that is sufficiently general so that each individual has something to contribute, and the value of each contribution can be assessed only as it entered into the final pooled intelligence constituted by the contributions of all.*

- John Dewey, 1937

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**ENTREPRENEURSHIP  
AND CULTURAL PASSION:  
A CASE STUDY OF AID TO ARTISANS IN  
ARMENIA, 1995-1997**



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*Aram Sharambeyan and his sister Anush are the driving forces behind the successful craft-based enterprise, which generates more than half a million dollars in annual sales.*

## Entrepreneurship and Cultural Passion: A Case Study of Aid to Artisans' Work in Armenia, 1995-1997

“In November of 1993 I was driving from Karabagh and it was the first day of the snow. I was the only person on the road. The policeman asked, ‘Are you crazy? You won’t get over the high peaks.’ I said, ‘I have no way of staying here because at 2:00 pm tonight a flight is leaving from Yerevan and I have to deliver an order of six carved wooden spoons.’ So we ruined the car but we made it. It has to happen! It’s out of the question, not discussed. It has to happen.”

Aram Sharambeyan, 2002

Aram Sharambeyan’s drive through snow-covered mountains exudes the true spirit of an entrepreneur: fearlessness, grit, and a passion for Armenian craft. In 1993, amidst dramatic political and economic turmoil, Aram and his sister Anush Sharambeyan co-founded the Sharan Craft Center (SCC) in Yerevan, Armenia.<sup>1</sup> Children’s loom-knitted clothing, appliquéd with crocheted animals, flowers, and nautical figures, formed the signature focus to the success of SCC’s knitwear business. In 2002, SCC’s annual sales surpassed US\$600,000, it employed 400 artisans, and it paid an average wage over 50% higher than the national figure. In relative terms, US\$600,000 translated to more than US\$3.5 million in US retail sales and surpassed the investment made in the business by Aid to Artisan in its project from 1995 to 1997.

This case reviews Aid to Artisans’ experience in Armenia from the early 1990s through 2003 and highlights the 1995-97 project funded by the United States Agency for International Development (USAID). It is part of a series of cases, funded by the Ford Foundation, that examines and draws lessons from ATA’s global experience. The case describes the activities, results, and lessons learned

### **Funding history:**

- 1993-1995: Multiple small grants; in-kind support; SCC and ATA self-funded work
- June 1995-April 1997: USAID project (US\$537,000, channeled through Save the Children).

**Major project objective:** To generate employment; SCC was founded to preserve craft and culture; ATA’s objective is to improve artisan livelihood

### **Activities:**

- Marketing: Direct market links (4 trade shows prior to the major project, 4 trade shows during the project), 9 trips by Aram and Anush to the trade show
- Design: 100 days of product design by 3 consultants
- Business training: Considerable mentoring, practicum opportunities and 30 days of business training by 2 consultants

### **Results:**

- Local partner organization transformed itself into business; sales tripled and employment doubled in five years post-project
- Cumulative sales surpass total project budget within two years of end of project.
- Sales: US\$180,000 in sales at end of project; in 2002, annual sales were more than US\$600,000 and cumulative sales were more than US\$2.5 million.
- Jobs: 500 women employed; 200-400 have work at any one time. Part-time, home-based workers earn 94% of the national per capita income; typical SCC artisans earn 164% of national per capita income.

<sup>1</sup> Sharan Craft Center was first named the Armenian Craft Enterprise Center (ACEC). The founders changed to the current name in 1999 due to a government regulation that charged higher taxes for businesses with “Armenia” in the company name. For ease of discussion, the name Sharan Craft Center (SCC) is used throughout the case.

from ATA's employment-generation project. The case illustrates the efforts of two key Armenian entrepreneurs, Aram Sharambeyan and Anush Sharambeyan, as they fulfilled their father's vision of support to the craft sector and nurtured a thriving business from a mere idea.

The collaboration between Sharan Craft Center and Aid to Artisans provides a unique case example for several reasons. The period of formal involvement, slightly less than two years, was short for an Aid to Artisan development project, and was preceded by an informal association of two years. The Armenia project evolved from an organization into a business and the entire project focused on SCC, rather than on several organizations or businesses. Finally, while SCC began with a multi-media product line, their narrowing focus on knitted textiles offers a contrast to other cases that are described in this Ford Foundation-supported assessment.

The case explores factors that contributed to company growth, with an emphasis on inputs from Aid to Artisans and discusses elements of business success. To write the case, ATA staff reviewed project records, interviewed artisan businesses, consultants, ATA and Sharan Craft Center staff, and buyers. The field research was conducted in September 2002.

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## ARMENIA AND ITS CRAFTS

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Armenia sits at the border of the former Soviet Union next to Turkey. Soon after independence from the Soviet Union was declared in 1991, the economy collapsed: GDP fell 60% in 1992-93. The basics of urban life ceased to function. By the winter of 1992, Armenians faced a desperate situation: no heat or food, erratic electricity and water, rampant unemployment, and homelessness. In ATA's 1994 assessment, Thyrsa Christel summarized the challenges the Sharambeyans faced:

"The problems facing such a fledgling organization today would daunt even an industrial giant. Salaried jobs appear to be mostly governmental, paying as little as US\$2.00/month. Yerevan's infrastructure has deteriorated along with its pavements. Electricity is irregular and limited to a few hours a day for most of the population. There is no banking, as we know it, nor access to credit. It takes most of one's waking hours just to cope with daily needs."

By the end of ATA's project in 1997, some of the macro functions had stabilized. Water flowed, the power was back on, and inflation, which had been as high as 175% in 1995, had decreased. But factories and scientific institutes remained closed, and those who retained their jobs were often paid erratically or not at all. The UNDP reported that by 1997 approximately 30% of the population had emigrated in search of other opportunities<sup>2</sup> and the World Bank categorized more than half the population as poor or very poor.<sup>3</sup> At least 20% and perhaps



*Hand skills are abundant in Armenia and valued. In times of adversity, Armenians have turned to their craft skills to earn money, providing a bridge through periods of financial hardship. From the late 1800s until 1915, relief workers, who wanted to help the survivors of the 1895-96 massacre of Armenians in Turkey, organized cottage industries and established a commercial market for the products in the US and England. After the collapse of the Soviet Union, craft skills again provided employment for hundreds of women.*

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<sup>2</sup> UNDP, 1997, P. 34-35. See Attachment A for additional information.

<sup>3</sup> In order to categorize households as very poor, poor, or non-poor, poverty and food lines are defined. The food line is defined as the cost of the minimum food at which an average individual achieves minimum food energy requirements within the Armenia. The poverty line incorporates food needs along with minimum non-food consumption. "Poor" households are those below the poverty line. If in addition a household cannot buy the minimum food bundle, the

as high as 30% of Armenians were unemployed a decade after independence<sup>4</sup> and an additional unreported number held occasional or infrequently paying jobs. In 2002, when ATA returned, the World Bank placed Armenia as a low to lower middle income country.<sup>5</sup> As at other times in Armenian history, crafts have served to bridge a period of economic hardship in Armenia.

### Craft Traditions

Armenian women and men have long expressed their creativity through exquisite wood carving, fine metalwork, and complex, high-quality needle laces, knitting, crochet, and embroidered textiles intended for household use, everyday clothing, and traditional costumes. Many designs link artisans to family regions where crafts were often village-based. Armenians consider knowledge of needle art techniques a heritage of critical importance for successive generations of women.

In times of adversity, Armenians have turned to their craft skills to earn money and used craftsmanship as a mechanism for to bridge periods of financial hardship. As an example, from the late 1800s until 1915, relief workers, who wanted to help the survivors of the 1895-96 massacre of Armenians in Turkey, organized cottage industries and established a commercial market for the products in the US and England. The organization employed more than 2,500 women who made needle-knotted, lace-edged textiles for export.<sup>6</sup> Abrahamian (2001) summarizes the close link between crafts and life in Armenia,

“A craft skill has traditionally been considered to be a safety net: an occupation that may, sooner or later in hard times, become immensely useful (or as an old Armenian proverb says, an artisan remains hungry only until midday). Just so, the embroidery and needle-lace weaving skills of women were defined as “the bread of the black days.” These traditional perceptions proved to be true once more, as we have seen in the 1990s. Furthermore, in this recent period, those whose craftwork had been only for private use began to use it to earn money and for many of them, the hobby eventually turned into their main, and sometimes only, occupation (p. 265).”<sup>7</sup>



*Aram described attending and selling products at the New York International Gift Fair as a “five-day MBA.” He and Anush credited SCC’s success in part to repeated trips to the market.*

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## PROJECT ACTIVITIES AND RESULTS

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Aram and Anush Sharambeyan grew up in a family deeply engaged in the artistic life of Armenia; their father, Hovhannes Sharambeyan, was the founding Director of the Folk Art Museum in Yerevan starting in 1979. As young adults, Aram pursued academic training in languages and as a jeweler, while Anush directed her academic studies toward ethnographic textiles of Armenia. They founded the Armenian Craft Enterprise Center, the precursor to SCC, to promote “craft preservation and preservation of culture.” The Sharambeyans’ earliest ideas centered on organizing an international exhibition of Armenian crafts. A successful international business was far from their original goals.

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household is “very poor” (Development Research Group/Poverty and Human Resources Division of the World Bank, 1998).

<sup>4</sup> World Book Factbook, 2000.

<sup>5</sup> World Bank Development Indicators (2002).

<sup>6</sup> Teager, 1997.

<sup>7</sup> Abrahamian, 2001, p 265.



*ATA consultants, including Holland Millis (above, at far left), worked with artisans to create diverse product lines in textiles, carved wood, and metal. Consultants introduced the idea of developing product collections rather than a single item, a central tenet of successful product marketing.*

ARMENIAN CRAFTS ENTERPRISE CENTER  
 9 Ahovian Street, Yerevan 375002, Armenia  
 Tel: 3742-50 15 92, Fax: 3742-151 868

set #w-94

Ref # w-91	Ref # w-93	Ref # w-92
Description spatula	Description spoon	Description fork
Ht x W 14 1/4 x 3 1/4	Ht x W 14 1/2 x 3 1/4	Ht x W 14 1/2 x 3 1/4
Material Wood	Material Wood	Material Wood



As co-founders, Aram and Anush Sharambeyan brought highly complementary skills to Sharan Craft Center. Aram described his contribution as “organizing export production,” and focused on SCC’s external relations: communicating with clients, developing markets, business forecasting, sourcing raw materials, and overall “deal making.” Procuring yarn and managing tax issues took a great deal of Aram’s time. Anush oversaw production at SCC. Also fluent in English, she led the design and product development functions and was key to fostering a nurturing business climate.

### The Sharambeyans and Aid to Artisans Meet: 1993-1995

SCC’s vibrant workshop evolved from the Sharambeyans’ desire to preserve culture and craft. In 1993, the Sharambeyans dreamed of mounting an international exhibition of Armenian crafts. In the US, Armenian supporter Nancy Sweezy showed ATA President Clare Brett Smith a few SCC products. Clare was not impressed, but she saw potential for some of the beautifully carved wood in the US market. She offered to include a few of the Armenian products at the upcoming New York International Gift Fair (NYIGF) in August, 1993.

Aram arrived in New York with a few products, expecting to observe how his merchandise looked in the ATA booth, but quickly became immersed in what he later described as a “five-day MBA.” Business terms such as minimum orders, invoices, and FOB were totally new.<sup>8</sup> Aram left the show, elated at having sold his products and procured an order for US\$200. Arriving home, he realized that production was his next step.

While Aram and Anush’s goals of preserving Armenian crafts remained firm, their means for achieving the goal gradually transformed based on the gift show education and other interactions with ATA between 1993 and 1995. In May 1994, Thyrza Christel, a long-time ATA volunteer, conducted an assessment of Armenian crafts with expenses paid by the International Executive Service Corps (IESC). Christel left Armenia believing that crafts held potential for artisans if markets could be found. She estimated that an active artisan should be able to earn from US\$50 to US\$300 per month.

However, she also identified a variety of challenges to developing Armenian craft: the limited availability, high cost, and low quality of raw materials; the high costs for shipping; and challenge of organizing artisan labor for production. The newly independent nation’s standards differed from global business expectations in quality control, standardization, adherence to deadlines, designing to market demand, and competitive pricing. Thyrza’s recommendations for craft development centered on a central workshop with a materials bank, design assistance, and continued participation by Aram Sharambeyan at ATA’s NYIGF booth.

<sup>8</sup> FOB (free on board or freight on board) is the price of the product as it leaves the country of origin with proper documentation and packing. US retail is typically six to eight times the FOB price.

During the following year, prior to the start of project funding, small orders arrived from US retailers. By early 1995, SCC's initial success was encouraging: nearly US\$30,000 in orders from 35 American buyers. Private American donors, some of Armenian heritage, financed Aram's four trips to the NYIGF and backed equipment purchase. In addition to the craft survey by Thyrsa Christel, IESC funded Armenian products in ATA's New York show booth. ATA granted funds to stock a wool materials bank to alleviate raw material and cash flow difficulties. ATA advised SCC on merchandizing products for the US market and advised the founders on business strategies for dealing with US customers.

By 1994, artisan incomes had improved to an average of US\$30 per month for 150 workers. During the four-month peak demand, approximately 100 artisans were employed with another 50 working for six to seven months that year. However, Aram assessed, "Should SCC not expand its capacity to meet independently the demand in a timely manner, all of these gains may be lost." To move the organization to its next stage of growth, it needed to understand and meet market demand, develop appealing products, improve quality and increase production capacity.

### **ATA Project: 1995-1997**

The ATA-Armenia project was short by ATA standards, operating for just two years through funding from USAID channeled through Save the Children. The budget of US\$537,000 supported field director Susan Yacoubian Klein, office expenses and staff in Armenia, a series of consultants, marketing activities that included continued participation in the NYIGF, and programmatic and administrative support from ATA's home office in the US. Consultants for the project included knitwear designers Sheila Meyer and Lynda Grose, who made one and four trips to Armenia, respectively. Holland Millis, a three-dimensional product designer, worked with wood and metal artisans in 1996. Finally, Warren and Pamela Brown served as business consultants in 1996. More detail on project inputs and consultant trips is found in Attachment C.



*At the end of the project, in 1997, the Sharambeyans decided to drop the less promising wood and metal lines (which were produced by men) and focus on the more marketable textile products, which were made by women. It was a risky decision but a successful one.*

From the perspective of Aram and Anush Sharambeyan, continued participation at the NYIGF and insights gained from a series of consultants were pivotal to SCC growth. Design input was essential, Aram realized:

"I knew we needed to do it. These responsibilities needed to be given to somebody else. We cannot do it. We needed a designer who lives in the country where your market is. It's not about them being better or worse. It's about them having a different set of knowledge. That's why this assistance, input, is a must."

While in New York, the Sharambeyans toured the gift show and scouted a variety of US retailers. Aram particularly valued the practical, hands-on "ATA style" in working with him. He recalled, "The ATA people knew that and just allowed me to flow, absorbing what is happening very subtly...very easily and calmly."

SCC and ATA continued to promote wood, metal, and knit product lines. Gradually orders for knitwear increased, with a major order coming in late 1996. The Sharambeyans followed strategies

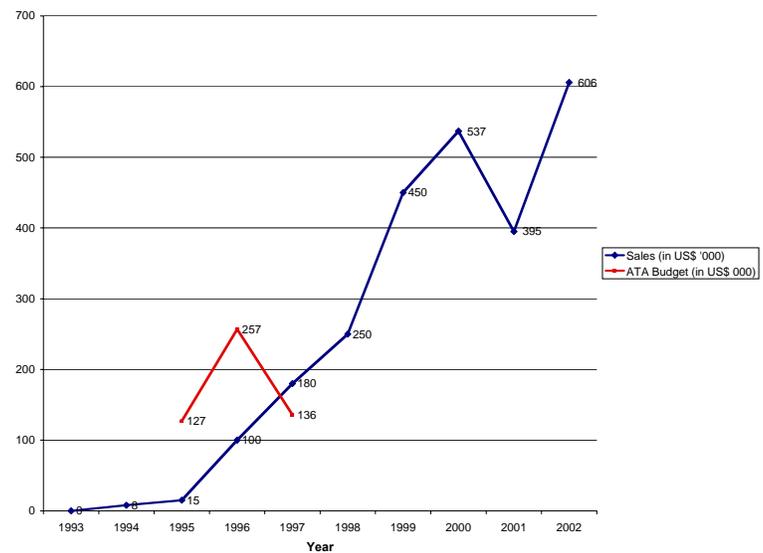
recommended by IESC business consultants to expand production, forming artisan work groups for specific orders. In addition to constantly screening new workers, SCC also outsourced some production to two smaller sewing factories for products that required larger production space. The use of half-dormant factories not only helped SCC gain the workforce it needed to complete the orders, but also helped revive work for people in these factories in Yerevan. SCC expanded without large capital investments while giving international companies access to greater production capacity. SCC readied itself for dramatic growth from 2,000-2,500 sweaters a month to 10,000 sweaters a month. Being able to meet volume orders helped SCC overcome the seasonality of production in response to bi-annual NYIGF.

In February, 1997 at the final trade show funded by the project, SCC decided to exhibit only the children’s knitwear line, which seemed to have a more robust market than the metal and wood products. With this decision, women artisans’ work was retained while men’s work was not. Aram reflected, “It was like standing at the edge of the cliff and you could either fly or fall. Luckily we flew as that was the show where we got [importer/wholesalers] Heat Waves and Zutano as major clients.” Heat Waves continued as SCC’s largest client in 2002. With expanded orders, SCC enlarged its space and by the end of the project in 1997 moved to new quarters that allowed for expanded production and consolidation of all operations under one roof.

**Return on Project Investment**

What return on their investment did ATA’s funder, USAID, receive? Targeted indicators for measuring project success changed as the project progressed. At the outset of the project, numbers of artisans employed was the key indicator. Initially SCC focused on increasing artisan numbers from 150 to 300 while stabilizing artisan income at US\$30 per month. At project completion, 505 artisans were employed at SCC (340 artisans) and ancillary factories (165 artisans) with an average monthly artisan income over the life of the project of US\$30.73. At the close of the project, 40% of the artisans were earning steadily over US\$30 per month.

**Chart 1. ATA investment and SCC sales**



However, as the project progressed SCC and ATA turned their attention to generating sufficient revenues to cover operating expenses, marking an ideological shift from an artisan assistance project to a market-oriented business. This shift was made also: sales of US\$129,000 generated during the last six months easily surpassed sales of US\$61,124 generated in the first 17 months of the project. Sales continued to grow and were on target to pass US\$600,000 in 2002.

## Sharan Craft Center Grows, 1997-2002

Although SCC was successful by many standards, challenges remained in raw materials procurement, shipping, and cash flow. SCC had used the same mercerized Greek cotton yarn for a number of years, which took weeks to deliver. In 2002, SCC clients expressed interest in sourcing products using a broader range of yarns. Shipping was a major expense; container shipment, which would have reduced costs, took too long to be feasible. Cash flow and working capital also constrained the business because Armenia's financial services industry was nascent.

Between 1995 and 2002, more than 1,100 artisans had registered with SCC; approximately 500 were active in 2002. Of these 500 artisans, 200 to 400 women worked at any given time, most of them home-based. Each order dictated the production skills needed, and thus determined which artisans executed the order. An order for garments with extensive crocheted details, for example, might call for a large number of crocheters to complete the whimsical finishes.



*Group leaders were responsible for monitoring quality during production and maintaining the extremely detailed documentation required to pay artisans for each task they complete.*

Still in 2002, few regular jobs existed in Armenia, and five or six women arrived per day seeking employment. Only one in four passed the rigorous paid training held twice annually. Group leaders devoted sustained attention to the artisans once they were hired, often discussing personal problems as well as work-related issues in order to find workable solutions.

ATA staff cited two other project outcomes as long-term indicators of project success: ATA continued to refer businesses seeking overseas production of knit goods to SCC, and ATA had hired Aram Sharambeyan several times as a consultant on other projects.

Although SCC focused primarily on developing an export market for Armenian crafts, it simultaneously developed a small domestic market. A retail shop with 2002 sales of US\$60,000 was housed on the top floor of the SCC workshop, and an annual holiday sale attracted the expatriate community. Maintaining a small domestic market as a form of market diversification served multiple purposes. The shop manager captured market responses to SCC products through her discussions with customers, many of whom were from nearby Embassy staffs. The store provided a venue to sell samples and excess production at prices that allowed SCC to recoup costs. For the annual holiday sale, Anush encouraged artisans to develop their own creative ideas, test the market, and earn additional income.

At the end of the project in 1997, SCC had dropped the men's wood and metal products to focus on the more promising textile business. By 2002, Aram and his cousin had revived the small woodshop with efforts now directed toward designing custom furniture primarily for the domestic market and for export. The wood business was growing, employing a dozen carpenters and carvers, and expected to break even in 2002. They had purchased a small facility on the outskirts of Yerevan for the business and were negotiating for a wood kiln so that wood can be properly dried on-site.

## **Evolving Business Strategies**

The Sharambeyans developed strategies that form a set of lessons learned over their ten years in business. SCC does not give quantity discounts. Rather they work from the beginning to arrive at the best price for all parties, never knowing how many will sell. As the business grew, the Sharambeyans began charging to cover the cost of yarn and labor for samples, although not the cost of the design team's time. Their rationale evolved,

“That’s of the ways of keeping our importers at bay with their wild imaginations. If you don’t do that, then they start changing things three times a day even before you get to the final sample. Sometimes it’s pink in the morning and they ask for maroon in the evening, while we in the meantime have made the revised pink version. So what are we going to do with it? We have spent yarn, we have spent labor, we have spent our time, we have spent our brains. Once we apply these charges, they start to think much more before asking us for changes.”

Despite their success, SCC never produced printed marketing materials. Aram explained that because their export lines are exclusive to specific importers, these importers market their proprietary lines. SCC did not even show the lines to other buyers, but instead relied on building long-term relationships with their clients.

Building long term relationships are given high priority and significant attention. Aram assesses the importance of strong client relations for a company whose production occurs far from the importer’s place of business. As Aram noted, “I’m not a wholesaler sitting in New Jersey who can send two or five samples. We are talking halfway around the world.” Over time the Sharambeyans had learned the value of carefully laying out to a potential client all the problems or consequences of going into business with a firm that produces in Armenia. If the client showed continued interest, then the relationship moved forward.

The Sharambeyans described their business forecasting as “situational” analysis. Rather than setting specific sales goals for a year, they examined their current situation and analyzed what was needed for them to grow. As an example, aware of yarn limitations and the potential for product saturation in the children’s knitwear market, they have chosen to diversify their product categories to bed linens, etc. rather than trying to add more knitwear buyers. Aram alerted, “It’s too dangerous to sit on what we have.”

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## **ARTISAN LIVELIHOOD AND CAPABILITIES**

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Aid to Artisans’ goal is individual and community well-being, which can be can be measured and evaluated in a variety of ways. Robert Chambers (1997), one of the world’s leading development scholars, suggests two levels of analysis that are useful for discussing artisan well-being: livelihood and capabilities. In Chambers’ model, livelihood flows from a dependable source of cash and food to meet basic needs. Capabilities contribute to livelihood and are improved through training, learning, and practice.

This assessment of artisan livelihood—the income earned from craft-based activities—was based on SCC accounting records and from interviews with 22 artisans, 59% (13 women) of whom had been with SCC during the period of the ATA project from 1995-97.<sup>9</sup> Artisans ranged in age from 21 to 53, with an average age of 37 years. Ten artisans and six group leaders worked with knitting and four

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<sup>9</sup> Both purposive and convenience sampling were employed for selecting interviewees; see Attachment B for more information on field research methodology.

**Table 2. Income and household expenditures for interview participants in US dollars**

Group	Monthly income Average	Yearly income Average	Purchasing Power Parity (Conversion factor of 5.1 for Armenia data)
Textile artisans	77	924	4,712
Crochet/assembly (home work)	44	528	2,693
Handloom (at workshop)	99	1188	6,059
Wood artisans	205	2,460	12,546
Group leaders	191	2292	11,460
All artisans	136	1,632	8,343
Total household	203	2,436	12,434
Accountants records	60	720	3,672
Armenia overall (2001)	47	560	2,880
World Bank world figures (2001)			
Low income	36	430	2,040
Lower middle income	103	1,240	5,020
Middle	154	1,850	5,710
Upper middle income	372	4,460	8,730

with wood (one group leader and three artisans).<sup>10</sup> Artisans devoted long hours with those working at the workshop arriving at 9:00 or 10:00 am and leaving around 6:00 pm, six days a week. Artisans working at home crocheted or assembled garments for up to eight hours a day, often fitting the work around domestic responsibilities. Prior to joining SCC, two-thirds of the interviewees had held a variety of professional positions during the Soviet era. Physicists, engineers, teachers, and factory workers who earned a comfortable living during the Soviet era had found that working at SCC provide a refuge from unemployment during a financial crisis.

### **Livelihood: Meeting Basic Needs**

Livelihood relates directly to income and meeting basic food needs. SCC artisans earned as much as or more than the average Armenian. Table 2 shows income figures provided by the 20 interviewees and the July 2002 SCC payroll records, and are presented in the context of 2001 gross national income (GNI) and purchasing power parity (PPP).<sup>11</sup> Woodworkers reported earning considerably more than textile artisans, and group leaders more than production workers.<sup>12</sup> However, even the home-based producers, who often did not work a full-time, earned 94% of the average Armenian monthly wage of US\$47. The accounting records, which are not separated by type of worker, showed a monthly income average of US\$60.<sup>13</sup> Because the purposive samples included a proportionally higher number of longer-term employees and group leaders, salaries for the sample

<sup>10</sup> Two artisans were excluded from the quantitative analyses as one had left SCC employment and the other provided only partial answers.

<sup>11</sup> GNI is presented in US dollars. However, because purchasing powers differ among countries, GNI is converted to PPP using a conversion factor that reflects equivalent purchasing power. The equivalencies are calculated based on price and expenditure surveys for a set of commodities, such as a kilo of "long grained rice in a plastic bag" (World Bank World Development Indicators database, 2002, Section 5.6).

<sup>12</sup> Salaries for wood artisans reflect supply and demand, with Aram Sharambeyan voicing a major challenge of finding qualified workers in wood. In contrast, when Anush Sharambeyan placed a newspaper add for textile artisans in 2002, over 200 applied for the positions.

<sup>13</sup> Payroll figures appear to inflate artisan salary because artisans who complete very little work team together in receiving their pay; this practice helps offset the accounting burden of very small payments to individuals who do limited work.

group were likely higher than SCC average salary would be. Total household incomes in Table 2 should be interpreted with caution due to the small sample size. However, half of the artisans provided the sole source of income for their families.<sup>14</sup>

Despite higher than average wages, the ten textile artisans (average monthly income US\$77) reported using nearly all their income for food, which meets the criterion of “very poor” or “poor” in the World Bank poverty data.<sup>15</sup> One woman described, “It’s not enough, I cannot save.” Another shared that she lived “from one salary to the next for food.” In addition to food, transportation to work could consume another 16% of wages (US\$12) each month with utilities at an average of 30% of monthly wages (US\$23). All but two owned their apartments.<sup>16</sup> These percentages conform to other information about household spending patterns in Armenia.<sup>17</sup>

In assessing their livelihood, 55% of respondents evaluated their economic situation as “normal” or similar to that of their neighbors, while another 40% considered themselves to be better off. These assessments ranged across the respondents and were not limited to those in the higher income brackets. When families did have resources beyond those needed for food and household utilities, they used the extra funds to repair their apartments, help members of their extended families, or buy items for their children such as computer software or school supplies.

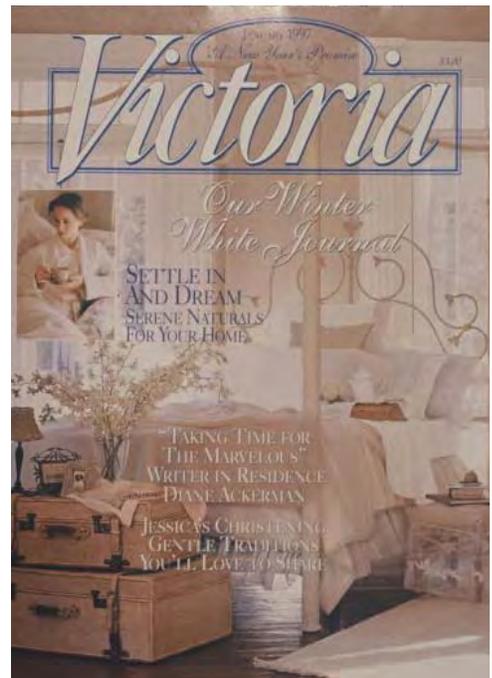
SCC artisans considered themselves fortunate to have steady employment where they were paid regularly:

“Unlike other places, they don’t lie to you. That’s the first thing that is established, that there will be no lying. Woodworkers are paid on time. Here such things [as late pay] don’t happen. You can count on your fingers the number of places in Armenia where you get paid and there are nice people.”

To summarize artisan livelihood for 2002, Sharan Craft Center offered artisans opportunities to transition from well-paying professional and scientific positions, negotiate an unexpectedly prolonged period of economic crisis, and acquire new jobs that allowed them to meet, at a



*Home linens with detailed crochet embellishments were successful at the end of the project.*



<sup>14</sup> By working at home, crochet and assembly workers can vary the hours they work, directly affecting their pay. The steadier income for loom knitters is offset by the regular work schedule they must maintain in the workshop.

<sup>15</sup> In order to categorize households as very poor, poor, or non-poor, poverty and food lines are defined. The food line is defined as the cost of the minimum food at which an average individual achieves minimum food energy requirements within the Armenia. The poverty line incorporates food needs along with minimum non-food consumption. “Poor” households are those below the poverty line. If in addition a household cannot buy the minimum food bundle, the household is “very poor” (Development Research Group/Poverty and Human Resources Division of the World Bank, 1998).

<sup>16</sup> Ownership of apartments was transferred to resident in 1993; however maintenance can be costly and depend upon who was able to pay and felt responsible. For example if a person lives on the top floor and wants to count on a dependable elevator and a roof that does not leak, the apartment owner may need to cover those expenses. The results of years of deferred maintenance, as well as sometimes shoddy initial construction, will no doubt affect many more people in years to come if the economy does not strengthen.

<sup>17</sup> See 1999 figures in the *Living Standards of Population and Social Sphere Report* (National Statistical Service of the Republic of Armenia, 2000) for Armenia. At that time Armenians report spending 69.4% of household expenditures on food, 15.6% on non-food items, and 15% on services.

minimum, basic needs for their families. For a few employees—the group leaders and wood artisans—yearly income was four times the per capita annual income of US\$560. Loom knitters’ average income of US\$1188 was twice the Armenian per capita income. Unmistakably, livelihood—the dependable source of cash and food to meet basic needs—has improved from a time when most were unemployed. However, many artisans struggle to move beyond providing for the most basic of household expenses.

#### Comparison of 1997 to 2002 wages.

In 2002, artisans were earning more and were better off than they were in 1997. At the end of the ATA project in 1997, artisans earned average monthly wages that were 129% of the Armenian average (US\$30.73 earned vs national average of US\$23.74). By 2002, textile artisans were earning a self-reported 164% of the national average of US\$47 (US\$77 per month). From accounting records, the corresponding numbers are 128% of the national average (US\$60/month reported income). Home-based textile workers, the group with the lowest income, earned 94% of the national average; however, they also worked the fewest hours.

Artisan income increased in real terms. Armenia’s massive inflation in the mid-1990s sharply decreased after 1997, leading to an increase in real incomes.<sup>18</sup> Using Armenian inflation percentages and starting with an average SCC wage of US\$30.73 in 1997, Armenians would have needed an SCC wage of US\$33.62 in 2002 to purchase the goods and services from five years earlier to remain at the same level. Thus with textile artisan wages at US\$60 (SCC wage records) or US\$77 (self-report), SCC artisans have experienced real increases in income. Thus from a real income perspective, even home-based SCC artisans (with wages of US\$44) are better off in 2002 than they were in 1997.

#### **Capabilities: Learning New Skills**

Improved livelihood flows from capabilities that are enlarged through training, learning, and practice. In interviews, SCC artisans enumerated capabilities including new business skills, production capacity, and creativity. In a second major category, character building encompassed enhanced new self-confidence, leadership, and interpersonal skills.



*Textile artisans report higher than average incomes, and 95% of the people we interviewed said they were as well off or better than their neighbors. Many expressed relief to have a job that paid on time, and the real value of wages paid to artisans at SCC have increased since the project ended. Still, life is difficult in Armenia and most use most of their income for food.*

<sup>18</sup> Odling-Smee, 2001.

Overwhelmingly, artisans credited SCC for enhancing their creative thinking: “Your taste grows,” “We know how to play with colors,” and “You’re encouraged to bring new ideas to work.” Artisans marveled at “all the new designs and shapes we now know how to crochet.” A long list of new technical skills, including loom operation and repair, knitting and sewing stitch calculation, cleanliness and neatness of work, joining procedures, garment finishing, and computer operation, enhanced artisans’ knowledge of and efficiency at their work.

Still other employees described a new mind set that involved planning, managing responsibility, and taking on leadership for a business. As one artisan relayed, “Before I’d tell Anush, ‘Oh, I cannot do this.’ Now I say, ‘Give me more work.’” Several artisans adopted a marketing perspective that focused on client needs, how to meet those needs, and how to select the best workers to get the job done.

In contrast to skills directly related to business operations, artisans also identified interpersonal skills that contributed to greater self-assurance and the ability to act more effectively at work. As women began earning money again, or for the first time, they became more “confident to help my family” and independent as they “had something to go outside the home for.” By interacting with other artisans, women recognized that they were learning about the character of different people, their lives, and how to deal with “different situations that life brings to them.”

SCC artisans paired the importance of gaining an income (livelihood) with the many technical and interpersonal skills (capabilities) learned on the job. One group leader summed these dual achievements, “I am proud and confident to be the bread winner. I feel like a whole person.”

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## LESSONS LEARNED

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The Sharan Craft Center case provides a number of lessons learned that organizations working toward craft enterprise development can apply to projects beyond the Armenian border.

***No external investment substitutes for entrepreneurial drive.*** Sharan Craft Center’s success rests on determination and a passion for Armenian crafts. Aram exemplifies the profile of successful entrepreneurs who identify opportunities from pressures in the external environment, use their knowledge to identify ways to capitalize on the opportunities, garner limited resources, draw on external networks and resources, and accomplish their goal. Most importantly for Aram, entrepreneurship constitutes a way of thinking, problem solving, and risk taking. In turn, Anush Sharambeyan and her key production group leaders transformed their textile knowledge and passion for Armenian craft into products marketable in the international arena.

***Both business skills and technical knowledge essential.*** Founding and growing a craft business require both business and product expertise which the Sharambeyans epitomize in their complementary skill sets. Making sure that both “business” and “product” are fully covered through a clearly defined management structure and business plan is critical to ensure that significant attention is devoted to each function for long-term growth.

***External consultants brought key skills and market knowledge not available in Armenia.*** Anush and other SCC group leaders believed that several repeat consultant visits, rather than a single long consultancy, were essential to absorb and apply new ideas. For SCC, these new ideas included the immensely important concepts of product and line development, new colorways, sizing, and

production specifications. Design consultants with market expertise, rather than “artists,” were valued for their ability to design saleable products and to share their business successes and failures. SCC praised consultants who worked long hours during their brief visits, applied a hands-on approach, generated a broad range of products, and fostered a collaborative spirit.

***English fluency essential for US market success.*** English, the lingua franca of international business, is critical to the entrepreneur who wants to export to the US or even access the lucrative local expatriate market. For Aram and Anush, English was important for attracting and cultivating business clients in-person and through internet correspondence, ordering raw materials outside of Armenia, communicating with international clients concerning design and production specifications, and carrying out export shipping.

***Competence in the target market.*** By the end of the project, Aram had sold Armenian products in the New York show eight times, and Anush had been once. When they needed to decide what products to exhibit at the last project-supported NYIGF, they had the personal experience as well as ATA’s advice to inform the decision. Selling repeatedly at the US show provided understanding of US market’s norms and expectations, and provided an environment where Aram could learn how to negotiate with clients.

***Pre-project activities made two-year project feasible.***

Within ATA’s experience, two years is a very short time frame to facilitate market linkages, particularly in a country new to the competitive marketplace. Many of the ideas for conducting business and for developing product lines were totally new and took time to be absorbed and applied. Had SCC not already participated several times in the NYIGF prior to the two-year ATA project, it is doubtful that they could have made the progress they did in readily applying consultants’ concepts for line development, production systems, and production capacity between 1995 and 1997.



*In 1993, the breakup of the Soviet Union resulted in no power, water, or central heating in Yerevan. Although these services were restored by the late 1990s, unemployment remained high and a third of the population emigrated in search of better opportunities.*

***Promoting from within builds on previous investment,***

***encourages loyalty, and reduces risk.*** Although Armenia’s culture honors the wisdom that comes with age, SCC believed that talent, interpersonal skills, production planning, and overall leadership can be honed at an early age by both women and men. By promoting current staff, rather than hiring managers, they efficiently drew on previous investment in staff. Existing staff could be relied upon for understanding and furthering business culture.

***Listening to staff ideas pays dividends.*** While the Sharambeyans and their group leaders developed many creative solutions, they listened to and implemented employee ideas. Adopting creative ideas put forth by employees contributes to a culture of collaborative decision-making and fosters nascent entrepreneurial skills among employees. Many interviewees were pleased that their suggestions had been implemented.

***If not a business plan, then a clear business focus.*** Craft development organizations differ in their organizational structures and goals, and businesses with a social mission sometimes stretch far to reach their goals. Although SCC does not have a written business plan, it does have a focus. At one point in SCC history, the lure of offering employment to refugees outside Yerevan who were in desperate straits challenged Aram in “staying the course” of running a business. In working with the

refugees, Aram quickly learned that businesses and refugee projects have different goals, needs, and skills sets. Similarly, the decision to focus on children's knitwear, was a calculated strategy to focus and grow based on the most promising line. By focusing on the textiles, staff and consultants' attention was not divided or diluted among several media during ensuing years but rather concentrated on providing superior products, excellent quality, and good customer service.

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## ENDURING QUESTIONS AND FUTURE CHALLENGES

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This case raises issues to which there are no single answers, and to which answers change with time and with the setting: open and enduring questions.

Project implementers have a drive to reach scale, benefiting as many people as possible. In Armenia, the project started out working with a single organization that served all of the craft media in Armenia. Over time, very thoughtful decisions turned that into a business focusing on a single material, knitwear. Should SCC go out of business, the 500 artisans have no other links to market. On the other hand, SCC's success is surely due in part to the focus of the project on the business, in particular on Aram's repeated attendance at the NYIGF. When is it appropriate to put all of the production eggs into one exporter basket? In an ideal situation, how many exporters does the craft sector need? How do project make sure that the exporters are strong enough to succeed over the long term?

Income from artisan work at SCC has enabled employees to generate income during a long post-Soviet period of transition from a planned economy. Artisan work has provided a steady income at a time when many of the artisans' family members or neighbors were unemployed or infrequently paid. All artisans interviewed assessed their household economies as "normal" or "better than their neighbors." Should the economy continue to slowly improve, can SCC attract and retain a stable workforce? These concerns are particularly directed toward those well-educated workers who can turn to other forms of potentially higher paying professional employment. A hint that workers would remain loyal to SCC came as several workers compared their previous jobs to the SCC business culture. At SCC, they judged that their work is more highly valued, they are offered more opportunities to advance and they are encouraged to contribute creative business and design ideas. When should public investments be made in socially responsible businesses that are at the border of economic viability?

## Attachment A: Armenia case context

### Historic and Contemporary Armenia

The Republic of Armenia, with a population of 3.8 million people (Armenian Embassy website, 2002) occupies a fraction of the land known historically as Armenia, a broader territory held close within the long memories of contemporary Armenians. Armenia today shares borders with four countries; Georgia to the north, Azerbaijan to the east, Iran to the south, and Turkey to the west. Armenia's geographic location at the crossroads of competing interests from powerful neighbors has been both good fortune and bane. The country is vulnerable to invasion, and yet the recipient of cultural influences through trade. Armenia has prospered when at peace with its neighbors and suffered when caught between battling armies. Mountains that protected Armenia from attack have also isolated certain regions and fostered the development of independent traditions within its borders.

King Trdat's proclamation of Christianity as the state religion in 301 AD and Mesrop Mashtots's development of the 36-letter Armenian alphabet in 40 AD together formed the foundation for historic and contemporary Armenia. As Sourian summarizes, "It is . . . on the intertwined supports of religion and language that the Armenian identity stands (in Marsden, 1993, p. xv). For centuries, the Armenian Apostolic Church has symbolized and unified the culture and language of Armenian tradition. Considered brilliant masons, Armenians were passionate builders of churches, many of which remain standing today (Marsden, 1993). As Christel (1994) summarizes, "For Armenians, the church is both benefactor and inspiration for arts and handicrafts. Armenia's history is told through illuminated manuscripts, seen in the architecture and bas-reliefs of the churches, and echoed in the household crafts" (p. 2). Armenian cultural identity predominates within the nation, which is 95% ethnic Armenian. Armenia's strong identity fostered unity through a long history of severe economic and political hardships (Masih & Krikorian, 1999).

Russian dominance during the 17th and 18th centuries enlarged the Armenian Diaspora to Russia and Europe, where Armenians developed new ideas about autonomy from the Ottoman Empire. During this period, Armenians throughout the diaspora became doctors, jewelers, architects, cobblers, and as always, merchants, with the 17th and 18th centuries the apogee of Armenian trade.

Tragically, Armenia lay between two warring nations when the Ottomans attacked Russia in 1914. The Ottomans lost their first battle, blamed Armenian treachery, and initiated the Genocide that destroyed an estimated 1.5 million Armenians between 1915 and 1923 (Masih & Krikorian, 1999). While the loss of life was devastating, the hammering away of land was tragic as well. As Marsden (1993) states, "The loss of land was as deep a wound as the loss of life. Losing the land . . . is as much the legacy of 1915 as the massacres; it had marked the end" (pp. 77). However, Marsden also summarizes that, "The Turks managed to finish Armenia, but not Armenians" (p. 9).

Armenia declared itself an independent republic for a brief period from 1918 to 1920, but its territory included only a small, vulnerable portion of historic Armenia. Communists invaded and claimed Armenia for the Soviet Union in 1920. Traumatic decades followed with heavy agricultural and industrial development, further loss of Armenian-populated territories to Russian satellite nations, and the purge of another generation of Armenian intellectual leaders under Stalin. The Armenian Soviet Socialist Republic had achieved some degree of modernity by the 1960s, and Armenians began to demonstrate for Armenian independence (Masih & Krikorian, 1999). Marsden

assesses that despite its small size, “As a Soviet Socialist Republic, Armenia fared relatively well, prospering largely because of a skilled labor force, even while chafing under the concomitant oppression” (p. xv).

Armenia’s violent conflict with Azerbaijan over the return of Nagorno-Karabagh followed on the heels of Mikhail Gorbachev’s openness and restructuring policies in 1985. Negotiations for this land fell silent, however, when the earthquake of 1988 struck northern Armenia, killing tens of thousands of Armenians. Despite these and other disruptive political events, Armenia declared its independence from the Soviet Union on September 21, 1991. In 1993, Armenia transferred home ownership to its citizens and established laws that encouraged foreign investment (Masih & Krikorian, 1999).

### **Economy**

Soon after independence, the Armenian economy collapsed when the GDP fell 60% in 1992-93. Recovery has been slow. Before independence, Armenia depended on imports to supply its burgeoning industries—textiles, chemicals, electronics, machinery, synthetic rubber. However, the breakup of the Soviet Union disrupted these industries. Professional, scientific, and factory jobs that provided comfortable household incomes disappeared.

Conflicts with Azerbaijan have disrupted half of Armenia’s oil and gas imports. Unstable relations with Georgia have jeopardized access to seaports. By the winter of 1992, Armenians faced a desperate situation: no heat or food, erratic electricity and water, rampant unemployment, and homelessness. When Turkey closed its Armenian border in support of Azerbaijan, the threat of starvation forced Armenia to depend on humanitarian aid (Masih & Krikorian, 1999).

Armenians, with a literacy rate of 99%, consider education a high priority, but the numbers of college students has decreased and schools suffer from insufficient funding. Health care infrastructure is also under-funded and cannot meet the needs of Armenia’s population. After doctors and medical facilities began to charge for their services, Armenians considered health a “monopoly of the elite” and turn to doctors only in emergencies (UNDP, 1998, p. 35). An Armenian research assistant described a recent health emergency. Prior to the doctor agreeing to commence operation for appendicitis, her father drove around to various pharmacies in Yerevan to purchase the medicines needed for her anesthesia and treatment. Requisite direct payment to the doctor, rather than the hospital, also materialized. Waning medical supplies and not having received a hospital salary for several months contributed to the doctor’s hesitancy to proceed with the operation (N. Mirzoyan, personal communication, September 5, 2002).

The human cost of Armenia’s economic hardship has been substantial. According to a Department of Statistics household survey sponsored by the World Bank, 28% of Armenians are very poor, while 27% are poor.<sup>19</sup> An estimated 70% of the nation’s wealth belongs to 5% of the population. Much of Armenia’s poverty can be attributed to unemployment, which is often hidden under the guise of compulsory leave. Survey results indicated 25.7% of Armenia’s work is on forced administration leave, most with no compensation. An estimated 30% of Armenia’s working population has emigrated because of unemployment, and the percentage of children and elderly has increased by 15% (UNDP, 1997, pp. 34-35).

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<sup>19</sup> “Poor” households are those below the poverty line. If in addition a household cannot buy the minimum food bundle, the household is “very poor” (Development Research Group/Poverty and Human Resources Division of the World Bank, 1998).

In summary, since the onset of independence Armenia has faced nearly overwhelming challenges in transitioning to a market economy after nearly 80 years of central planning. Staggering impacts continue from lingering earthquake damage, faltering post-Soviet infrastructure, severe socio-economic instability, loss of valuable human capital through extensive immigration to the US and Europe, and regional conflicts, including hostilities and blockade by Azerbaijan over Nagorno-Karabagh.

In 2003, economic livelihood for the majority of Armenians remained difficult. In the fall of 2002, numerous teachers, medical staff, and other professionals were paid erratically, sometimes with delays of up to two years. Many family members were on permanent unpaid leave from their previous technical or scientific positions. However, recent infrastructural improvements offered some relief for daily life. Water and electrical service were dependable and a massive road repair and museum revitalization program was underway, funded by a member of the US Armenian community. Despite these changes, Masih and Krikorian (2001) describe the resulting “social dislocation” that affects the population:

Armenia has become a heavily stratified society. The poor do not just reflect uneducated and rural families. “The Poor” in Armenia is comprised of ‘most workers, school teachers, most local community doctors, engineers, the overwhelming majority of scientists, as well as small scale retailers. The huge expanse of the population which represents both highly educated and uneducated citizens has created a perception within Armenia of the poor representing the mass of society while “they” represent the ruling elite. “The poor” have little or no confidence in the state and many who are both educated and poor have no hope for a future (Masih and Krikorian (2001), p. 88).

## **Attachment B: Field Research Methodology**

The ATA field research was conducted in Armenia for two weeks in September 2002. The primary field research team was composed of Mary Cockram, Aid to Artisans, and Mary Littrell, Iowa State University. Both purposive and convenience sampling were employed for selecting interviewees. Four criteria guided the purposive sampling: length of time with SCC, including both pre- and post-ATA participants; craft media including textiles (crochet, assembly, loom knitting) and wood; employees who work regularly at the workshops as well as those who work at home; and roles, including group leaders and artisans. Within each group, participants were selected for convenience related to their work breaks or arrival at the office to deliver an order. Interview questions focused on topics such as past employment; training, responsibilities, challenges, and opportunities at SCC; as well as income, expenditures, and other demographics. Interviews were conducted by a three-person team; one researcher asked questions and follow-up probes in English; an Armenian translator interpreted the questions and answers; and the second researcher took notes in English. At the end of 22 artisan interviews, redundancy had been achieved in that no new answers or themes emerged in the responses to the interview questions.

Interestingly, at the end of the field research, Anush Sharambeyan reported to us that the women had not talked about the interviews amongst each other. They relayed that they liked the interviews as it really made them “speak within themselves” about ATA’s questions. In summarizing the interview period, Anush shared, “I feel as a group we are stronger, I just feel it.”

In addition to the interviews in Armenia, buyers were interviewed at the August, 2002 NYIGF and consultants and staff were interviewed.

Through this analysis, the goal was to be able to identify where ATA inputs were particularly meaningful or less effective, and determine which factors may have lead to innovative business practices.

## **Attachment C: ATA Program Implementation Methodology**

ATA started small, working with artisans who expressed interest in ATA. In all of the projects that are profiled in the case studies, ATA's services were requested by artisan organizations, businesses, government officials, or a donor. ATA has a strong bias to select entrepreneurial outlook that the Sharambeyans epitomize, whether that is in organizations, small or medium businesses, designers, microenterprises or individual artisans.

ATA's craft sector development strategy took shape during the organization's first major project in Honduras (1984-86) and has evolved based on opportunities that arise. It still fundamentally rests on three core services: product development, market links through buyer relationships, and business training.

### **Product development**

In most projects, ATA has started with product development. Experienced product design consultants work directly with artisan entrepreneurs. These consultants help artisans adapt, tweak, or overhaul the products they are already producing or develop new lines that will appeal to the U.S. and European markets. This process always begins by building on local traditions and materials to create functional and aesthetically desirable products. Consultants also work carefully to assist artisans in developing pricing structures which balance the need for a fair, productive wage and positioning within the marketplace that reflects the perceived value of the product. Throughout, however, the personal creativity and cultural traditions of artisans are respected and encouraged. Often, in fact, the goal is to help the group revive traditional crafts or create new products from local designs and innovations. ATA supports artisan development throughout the spectrum of capabilities – from inspirational artisans who can compete at the top of the market, to able artisans who supply developed country markets, to producers whose products meet local and regional tastes and needs. ATA takes care to ensure that the materials and processes are not environmentally damaging or harm human health.

### **Business training**

Training is an important component of both ATA marketing services and product design and development services, because business skills are the foundation that is required for product development and market links to work. Nearly every project involves some type of formal training or informal mentoring. Artisans participate in general business training, learning how to run and sustain a business. Among the many components of this training module are instruction in costing and pricing, production planning and management, distribution, quality control, packing and shipping, billing and collecting, customer service, export documentation, and US and international buying cycles and trends. The intense personal exchanges between fellow craftspeople, or between merchandising experts and producers, are powerful.

ATA's original approach of mentoring nascent businesses with "just-in-time" information has shifted and matured to accommodate the participation of larger businesses and better educated artisans in ATA projects. ATA's market introduction at the New York International Gift Fair (NYIGF) gradually developed into a formal Market Readiness Program (MRP) for approximately 30 exporters, craft business owners, NGO leaders, and ATA staff. During the Hungary project, ATA developed formal training tools including the *Export Manual* and the Market Readiness Program, based on the demands of project participants for formal training, but Aram in particular responded well to ATA's normal mentoring and hand-on practice. Ongoing improvements and extensions of ATA's training materials and delivery are central to its efforts.

### **Sales & Marketing**

ATA links artisans to the marketplace, connecting them to customers, importers or businesses with whom they can develop lasting professional relationships. In seminars or one-on-one consulting sessions ATA explains sales and marketing concepts and systems with which artisans may not be familiar.

ATA's roots are in the US market, but the organization expanded to European shows in the late 1990s and to the South African market in 2002. A central platform of ATA's marketing activity is trade shows. Around the world, ATA displays artisan products at shows such as the New York International Gift Fair, the California Gift Show in Los Angeles, SARCEA in South Africa, and Ambiente and Tendence in Frankfurt, Germany. As part of the Market Readiness Program, seminars are hosted in which artisans meet face-to-face with ATA marketing experts who explain marketing concepts and systems such as price points, quality control, display principles, and "green" products. Artisans have an opportunity to review current catalogs, product information sheets, websites, and other marketing materials. ATA consultants analyze their products for export potential and document them with photographs.

After a project is completed, ATA seeks to continue helping artisans and their US and European clients solve problems which may arise in the pursuit of commerce and growth. In this way, ATA continues to play an active role in helping both sides realize the benefits of commercializing unique, innovative products from artisan resources all over the world.

## Attachment D: Project Inputs

ATA investment toward SCC success centered around four themes that are at the core of the ATA disciplines. ATA:

- provided business training—an overview of buying structures, store visits, market trend applications, pricing, and mentoring from experienced professionals in the field of retail and wholesale. This training offered encouragement for a new way of thinking for conducting business in a post-Soviet market economy.
- facilitated exposure to the U.S. marketplace through trade show participation. At the NYIGF, a booth was provided where SCC could show their products, gain immediate buyer reactions to their products, and experience the cycle of buying and selling. Through this exposure SCC assessed the international marketability for a variety of traditional Armenian craft media, ultimately focusing on a single medium.
- provided consultants with expertise in market focused product development and basic business training. Through repeated visits consultants offered recurrent mentoring in collection development and technical design processes for transitioning to large volume production in the export market.
- facilitated the “Market Link” with importers, a key ingredient in SCC sustainability. ATA made introductions and mentored SCC in building these relationships.

The series of design consultants was critical to SCC growth. Knitwear designers Sheila Meyer and Lynda Grose made one and four trips to Armenia, respectively. Two of Lynda’s trips were after the end of the project. Holland Millis, a three-dimensional product designer, worked with wood and metal artisans in 1996. Finally, Warren and Pamela Brown served as business consultants in 1996 as well.

In 1995 Sheila Meyer initiated the first knitting training in design, quality control, and production and worked with the artisans on products for the NYIGF. Anush valued Sheila’s insights on new and different types of products the artisans could make such as hats, small bags, and sweater. Sheila introduced the artisans to the idea of drawing upon traditional textile motifs for application to contemporary products. She also introduced sizing charts which were sorely needed but not completely understood at the time.

Lynda Grose, former lead designer for Esprit and a favorite among the artisans and group leaders ATA interviewed, opened the artisans’ eyes to a whole new way of working and thinking about design. Two themes permeated Lynda’s consultancies. One was introduction of the tripartite US market (low, medium and high end) with varying consumer demands and profit margins. Second, designing and merchandising groups of products into product lines took center stage. Acknowledging that line development is a complex process, Lynda assessed, “A group doesn’t really get it until they have designed a line, taken orders from a specific client and gotten the order out the door on time.”

Aram particularly valued Lynda’s approach as a designer who knew how to produce for the market. He explains,

“She is a designer. She is not an artist. If your designer is an artist, then you better fire him. Making nice or beautiful things is easy. Making things that will sell, that’s the hard part. And we collaborated very easily just because I was telling her, “Lynda you’ve got to use not more than 26 leaves in a 20 meter cable. If you go anything beyond it, then we’re out of the target price.” I was providing her with information and she was designing around it. And she learned our skills, she learned our strengths and weak points. We worked very productively together.”

In turn, Lynda credited Aram's vision for sending her to visit regional churches and museums during her first visit to Armenia and encouraging her to learn the Armenian culture as a basis for her designing. Not all groups with whom she worked in other countries realize the importance of local cultural visits.

That Lynda returned for several shorter visits was particularly valued by Anush and the production team. Lynda describes Anush as "like a sponge" during their interactions; she watched how Lynda worked and tried to duplicate her approach. Designing a comprehensive product line was a totally new concept to Anush and the group leaders. Lynda's working style of mounting an evolving product line on the wall, adding and subtracting pieces as the week evolved, was valued by the production team. Between trips, the group needed time to absorb and apply what they were learning. Lynda contrasted her Armenian consultancies with other countries where she has worked by praising Anush for carefully retaining all the paperwork in large notebooks for repeat reference. In other places, Lynda noted that artisans don't seem to know what to do with the paper that is generated during line development.

With each repeat visit, the interaction became more collaborative with Lynda integrating the ideas presented by the artisans into marketable designs. She also introduced new techniques such as using a copier to shrink or enlarge design motifs and scouring books for design inspiration. Lynda noted that by her second trip, Aram and Anush had adopted a strategy of "editing to the best people" in order to get the most out of her expertise in a short period of time. Rather than involving a large group of artisans in the visit, eight or so of the best artisans were chosen for training; they in turn imparted their knowledge to others upon Lynda's departure. Anush praised Lynda,

"The most important is that she herself knew how to knit so she knew the job from the inside. It's not like some American woman came and taught the Armenians how to just knit better. She showed them how the market works from her own hands. And she introduced the size charts and we developed our size charts which we still use today. We came to understand what it means to make a collection, a line. This was good practice. We had never seen such things. And for a few years it's like a school that you have to pass for a few years. On her second trip, the work we did the first time in 10 days we can now do in 5 days. Now I can take one thing and make a collection."

Lynda was also praised for her expertise in working with colors. As one knitter remembered, "I can't understand red with orange—I never saw those colors together." In addition Lynda openly shared her professional experiences, both the successes and the mistakes. Lynda in turn praised the Armenian knitters for their hard work while she was on site, noting that it took artisans in other countries where she consulted a few weeks to accomplish what the Armenian knitters completed in only a few days. Changes noted by Lynda in the artisans included monitoring of their own work while achieving higher consistency in quality and greater speed. That Anush and her staff fully grasped Lynda's new ideas is evidenced by their current capabilities to carry out all tasks associated with line development. For smaller U.S. and European importers without technical designers on staff, these skills are a tremendous resource.

Repeat trips can also serve important functions for the consultant as well. Lynda assessed that during a first trip she is able to conduct research on long-honed, culturally integrated designs and technologies and to assess the artisans' skills. On an initial trip, she also assesses whether groups have a leader who is "smart, has a taste level, and is eager." These qualities she quickly identified in Anush and her design team. Upon return to the US, she continues the design planning for ensuing trips, well-acquainted with what the artisans can accomplish. As Lynda described, with an initial "research" visit, "the artisans get more bang for the buck" during her follow-up consultancies.

Holland Millis' hands-on working style of churning out several hundred products during a consultancy amazed Aram and the male artisans. Holland, owner of a successful craft-based business in Honduras and an expert in hard media product design, developed product lines in wrought iron, filigree metal, and carved and burned wood and in the process taught Aram that design can be fun. Aram and Anush both reported that many of the things Holland said to them in early 1996 about design and production were strange ideas for their country at that time. The new ideas only sunk in later as they became more familiar with the external market to Armenia. Aram contrasted Holland's more off-hand approach to designing with the more painful and studied approach Armenian woodcarvers seem to employ in "giving birth" to a new product. For Holland, design ideas are everywhere and as Aram describes, "He is such a charismatic person that you learn from him no matter where you are, be it in a restaurant or a workshop."

At the time of Holland's visit, Soviet factories were slowly closing; they lacked entrepreneurial leadership or clear ownership. Leftover material and scrap metal was plentiful and nearly free. While the US market did not respond well to the metal products that SCC showed at the NYIGF in August, 1996, some of Holland's beautiful but costly products are still available in the local Armenian tourist market in 2002. Blacksmiths found that making protective burglar bars for buildings was a better business than trying to meet the elusive and cost-sensitive export market. The filigree metal workers squabbled, split into two groups that still had internal problems, including theft of all the raw materials.

A final pair of consultants recruited by IESC arrived in Armenia near the end of the project in 1996. Warren and Pamela Brown, US businesspersons, were asked to assess SCC's order processing system and management structure. Suggestions for more streamlined procedures were offered; however, Aram did not find their specific recommendations to be particularly helpful. Aram notes that the team took a strict business approach, not accounting for the human factor so important to SCC. He described,

"They couldn't grasp that human factor and how this thing has to be adjusted to the means we have. We have this much of a building. We have this much money. We have this much of raw materials and this much money to spend on certain things. We have to cut everything according to our means and to our capacity. It was beyond their way of thinking."

However, Aram did believe that the Browns' recommendation toward "thinking big" was critical for setting their minds in a new direction. The consultants' perspective provided another point of view. Improvement of SCC procedures in preparation for an imminent leap in sales volume was ignited by the visit from the business consultants.

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## Introduction

Public libraries have changed the way they provide resources to the patrons they serve. The impetus for this change has been computers and communication technology. The questions that will be attempted to be answered are:

1. What drove the introduction of public access computers in public libraries?
2. How has the public library culture changed since the introduction of computers for patron usage?
3. What arrangements have been needed to deal with the influx of computers and other technology in the public libraries?
4. What has the leadership and decision makers of the public library done to provide a vision of incorporating new technologies for patron usage?
5. Has public access computers changed the way the library is organized and how it is staffed?
6. How has funding from the Bill and Melinda Gates Foundation impacted public library organizations?

The purpose of this two phase qualitative study will be to look at approximately 20 Midwest public libraries in relation to the provision of personal computers for patron use and its impact and influence upon organizational change. In the first phase, two small groups one consisting of the senior administrative staff and another with a couple of other library employees will be interviewed using semi-structured schedule to explore how the organization has changed with the introduction of public access computers. During phase two artifacts consisting of organizational charts, job descriptions, meeting minutes, financial statements, strategic plans,

technology assessments, and any other associated documents from 1994 to present will be collected.

In qualitative research, the role of the researcher can be as important as the participants. This researcher brings over 20 years experience from corporate America along with an MBA in management to her perspective. While having little practical experience in library and information science (LIS), the research lens will be a business view of public access computers and how the public libraries organizations have changed. In corporate America one learns quickly that change is the norm and those who do not adapt well to the environment and culture will be on the way out.

#### *Definition of Terms*

The following terms are used throughout this study. Terms listed are defined as commonly used in library science. This section of the paper looks at common terms that are used within the literature and study and defining them.

*Board of Directors/Library Board* – The Board of Directors or Library Board is a group of citizens in the community who have either been appointed or elected to oversee the library and its direction. The Director of the library typically reports to a Board of Directors or Library Board.

*Communication technology* – Communication technology refers to how the public library accesses the Internet. In today's environment, it can be through either copper wire, fiber optics, or through carrier systems like a T1 line or Integrated Services Digital Network (ISDN). This terminology can also include dial up, cable broadband, digital subscriber lines (DSL), and fiber optic cables.

*Computers* – For the purposes of this study, computers are the hardware and the software that patrons use to access to the Internet, commercial databases (EBSCO, etc.), online public access catalogs (OPACs), or software packages like Microsoft Word or Excel. In public libraries, this is typically a free service (but not always) and can have different mechanisms to control the use of public access computers in the library.

*Directors/Administrators* – Directors are those executives charged with the responsibility for the day to day management of the library as well as the short and long range strategic planning.

*Funding* – Public libraries are funded through many mechanisms. The library can be funded directly out of the city or county’s general fund, through bond issues (taxes), through direct taxes on property, special library districts, with grants obtained from outside sources, or any of the above in combination.

*Information Technology (IT)* – Cooper and Zmud (1990) define information technology (IT) “in a broad sense as it refers to any artifact whose underlying technological base is comprised of computer or communications hardware and software” (p. 123).

*Infrastructure* – “Infrastructure is a comprehensive term that encompasses all of the elements required to make electronic *content* and services available to the staff and public. Infrastructure includes the hardware, operating system software and workstation applications, networks, and telecommunications services that support the delivery of your technology-based service and electronic content” (Mayo, 2005, p. 5;emphasis in original).

*Public libraries* – “Public library (*FCSC definition*) is an entity that is established under state enabling laws or regulations to serve a community, district, or region, and that provides at least the following: 1) an organized collection of printed or other library materials, or a

combination thereof; 2) Paid staff; 3) An established schedule in which services of the staff are available to the public; 4) The facilities necessary to support such a collection, staff, and schedule; and 5) Is supported in whole or in part with public funds” (Chute, et al., 2006; de la Peña McCook, 2004;emphasis in original).

*Public good* – The definition of a public good has its roots in the theory of political economics. It is described as “a very special class of goods which cannot be withheld from all and for which the marginal cost of an additional person consuming them, once they have been produced, is zero” (Johnson, 2005).

## Literature Review

### *Introduction*

The research project will entail qualitative semi-structured interviews of approximately 20 groups of different public library staff members located in Iowa, Kansas, Missouri, and Nebraska. The questions will stem from the research questions listed previously regarding how public access computers have impacted organizational change in public libraries. This research is interested in how public access computers that patrons use have influenced change on public libraries. The study will interview public library staff as well as look at artifacts [various documents] spanning over a period of approximately 12 years. The study is important because there have not been any studies that have looked at how technology has influenced the organization of the public library. What literature that has been published has focused on academic libraries.

This study will tie Edgar Schein’s notion of levels of culture and group dynamics (2003) to the idea of technology in public libraries. All organizations have group norms that are unconscious structures that all employees in the institution adhere to whether they know it or not.

When something new is introduced into the organization, how does the group change to account for the new process or method that is being introduced? Is it ignored or is it eventually incorporated into the group's unconscious structures? Schein's (2003) levels of culture and Argyris' (1993) theories-in-use tie into the idea that when change is introduced different groups will behave in many conflicting ways. This study is just one way to look at how change is introduced into public libraries and was that change encountered at all levels of the organization.

### *The Public Library*

The literature on organizational culture and change is expansive with a nearly overwhelming breadth and depth. For this study, the organizational culture literature will be limited to the abilities of the related libraries to change due to the impact of technology particularly public access computers. The advent of personal computers in the 1980s has changed the ways people work, entertain, and socialize.

#### *The Role of the Public Library as a Provider of Technology*

Public institutions, particularly public libraries, contribute to the public good of the community in which they are located. It is possible to hypothesize that the Internet and computers in general have changed the public library's role in the community and society. If it has, how has the public library had to adapt the technological revolution that has been ongoing in society and culture since the 1980s and what have been the results of these changes. Table 1 listed below shows that computers being connected to the Internet was not overwhelmingly embraced until after 1997. This date coincides with the beginning of the Gates Foundation grants to public libraries for the acquisition of computers and software (Gordon, Gordon, Moore, & Heuertz, 2003). Based upon 1994-1996 statistics (Bertot, McClure & Zweizig, 1996) it appears that public libraries did not support the provision of public access computers. Table 1

looks at computers connected to the Internet and public access computers available in public libraries by central and branch libraries:

Table 1: Public Library Use of Internet and Public Access Computers<sup>1</sup>

	1994 <sup>2</sup>	1996	1997	1998	2000	2002	2004
% Connected to the Internet	20.9%*	44.6%*	72.3%*	83.6% <sup>a</sup>	95.7% <sup>a</sup>	98.7% <sup>a</sup>	99.6% <sup>a</sup>
% of Public Access Computers	12.7% <sup>3</sup>	27.8% <sup>4</sup>	60.4% <sup>5</sup>	73.3%	94.5%	95.3%	98.4%

Note: \* denotes library systems; <sup>a</sup> denotes library outlets

There is a void in the library literature relating to public libraries as a provider of public access computers and other technology. The types of articles that were being looked for were either success stories, case studies, or any methodology that could be used when public access computers were brought into public libraries. With the exception of a few Gates Foundation stories in *American Libraries* or *Library Journal*, there were very few of these articles. When searching for articles under technology and public libraries; public access computers and public libraries; information technology and public libraries; there were some current articles that came up in the library literature databases as well as looking in the business and public administration databases. Additionally, searches were made using keywords with change management and information technology with public library in all the databases mentioned as well. Very few articles were found. Dissertation searches were also done using the same keyword combinations and again there were approximately 10 dissertations found and not all of them pertained or were applicable to the current research.

<sup>1</sup> U.S. Census Bureau. (1998-2006). *The Statistical Abstract of the U.S. 1998-2006*. Washington, DC: U.S. Census Bureau.

<sup>2</sup> This number was from a report written by Bertot, J. C., McClure, C. R., & Jaeger, P. T. (2005, May). Public libraries and the internet 2004: Survey results and findings. Tallahassee, FL: College of Information, Information Use Management & Policy Institute, Florida State University.

<sup>3</sup> This number was from a report written by Bertot, J. C., McClure, C. R., & Zweizig, D. L. (1996). The 1996 national survey of public libraries and the internet. Tallahassee, FL: College of Information, Information Use Management & Policy Institute, Florida State University.

<sup>4</sup> Ibid.

<sup>5</sup> This number was from a report written by Bertot, J. C., McClure, C. R., & Fletcher, P. D. (1997). The 1997 national survey of public libraries and the internet: Final report. Tallahassee, FL: College of Information, Information Use Management & Policy Institute, Florida State University.

As the study is looking at technology as it impacts and influence management change in a public library, any time “change management” or any type of management word was used with technology in the library databases there were even fewer hits. If change management and public library was searched together few articles were found.

### *Technological Change in Library Literature*

Research related to technological change in all kinds of libraries is largely absent. While many articles are written about the automation of functions like cataloging, OPACs, circulation, acquisitions, administrative duties, and other repetitive tasks; there is very little published work explaining how automation came about. It is as if computers suddenly appeared in libraries and began to take over certain functions one at a time. Public access computers frequently mentioned in brief articles in *Library Journal* appear to be considered the norm in public libraries as is Internet connectivity (“122 Million” Library Users asks for More Technology,” 1991; “A Rationale for Free Use of Computers in Libraries,” 1986; “Apples in Baltimore County; Coin Operated System,” 1982; “Atari Comes to Queens, NY,” 1982; “Australia Going Online Down Under,” 1990; “Cambridge Public Joins the Internet,” 1994; “Circulating Personal Computers,” 1985; “Coin-Operated Computer Tried by NY Library,” 1976; “Community Development Buys Computers for Lorain, OH,” 1982; Emmens, 1982; “First Public Computers Put in Oklahoma Library.” 1982; “Forsyth Co., NC Installs Public Computers,” 1982; “Making \$\$ with an Apple,” 1982; “Montgomery Co. (MD) Brings Computers to the Disabled Population,” 1983; “NC Library Launches Charlotte’s Web,” 1995; “Portsmouth, NH Library Program: Circulating Computers, Workshops,” 1983; “Summer Reading Successful with Apples in California,” 1985; “Two NY Libraries Provide Computer Education,” 1982; Zamora, 1981). The research reports that are primarily authored by Bertot and McClure and their associates

(1996, 1997, 2005, 2006) mention public access computers in comparison to computers available to the staff that are connected to the Internet. Bertot and McClure's reports are more interested in access to the Internet and how the public libraries surveyed are connected.

It appears that Gates funding of computers and infrastructure in public libraries in 1997 was the start of public access computer in all types and sizes libraries. Bertot and McClure's reports suggest that most libraries with public access computers were those that were serving populations of 100,000 or more. Smaller libraries generally were not quite ready to provide public access computers at the time of the reports (Bertot, McClure, & Zweizig, 1996; Bertot, McClure, & Jaeger, 2004). The Gates Foundation funding changed for libraries of all sizes (Bertot, McClure, & Jaeger, 2005; Bertot, McClure, Jaeger, & Ryan, 2006; Gordon, Moore, Gordon, 2004).

#### *Historical Research on Technological Change*

For this section, there were two pieces of literature within library literature. The first was Patricia Willard's (1990) dissertation which looked at the introduction of public access computers in Australian public libraries. The other was Susan Lee's (1993) article on research libraries and the technology change that was occurring. Both articles are dated but lay a basis of for the research that will be done in this study.

Willard's (1990) dissertation looked at the introduction of computers in Australian public libraries. The first study on personal computers and public libraries, Willard investigated the rate of diffusion of innovation by the public libraries. At the time of the study (1984-1989) very few libraries in Australia had introduced computers into the public library environments. The author attempted to predict future adaptation of computers in Australia by using a Delphi study based on a survey sent out during 1984-85 to public libraries. Willard's study focused on public access

computers. In addition, the author concluded public access computers were a rare commodity. This research is similarly focused on public access computers versus computers dedicated to tasks and processes like cataloging, acquisitions, etc. in a library. There needs to be further research on the topic especially in public libraries where there is void in the literature. Willard's study completed in 1990 is informative, outdated, and somewhat geographically limited it provides the beginnings for further exploration of computers in public libraries

Susan Lee's (1993) article discussed theoretical constructs regarding organizational change in a research library using Warren Bennis' definition of organizational development as a "response to change." There was no research project discussed or methodology used in discussing the library but it appeared to be about a hypothetical situation at a library when an organizational change occurs. The author commented about technological changes in research libraries discussed organizational development and made the comment that the basic problem is that "today's research libraries face changes occurring at rates exceeding the scope of natural assimilation processes, and lack sufficiently comprehensive methods for adjusting and adapting to the turbulence" (p. 129). The rate of change of technology has not abated and since, in fact, the publication of Lee's article in 1993 an argument could be made that it is even faster today.

#### *Technology as a Catalyst for Change*

In this study, public access computers are being used as a stand-in for information technology. Cooper and Zmud (1990) defined information technology (IT) as it "is viewed in a broad sense as it refers to any artifact whose underlying technological base is comprised of computer or communications hardware and software" (p. 123). Cooper and Zmud's definition was rather broad for 1990 but is very appropriate for today. Computers without the communication infrastructure add nothing to what is considered integral services for public

access computers like Internet access for email and other needs (Bertot, McClure, Jaeger, & Ryan, 2006).

Carayon and Karsh (2000) studied the sociotechnical issues that emerge when a change process is being undertaken by an organization. The authors' comment:

the process of technological change is important to consider because (1) it can be a source of stress in itself by, for instance, creating conditions of uncertainty and overload, and (2) it can influence the resultant design of the work system (p. 247).

While Carayon and Karsh explored imaging technology in a for profit corporation, many of the results of the research are applicable to a not for profit world especially the resistance to change. When looking at public access computers in libraries and their impact on organizational change, the additional demands on time librarians and staff use to help patrons could create uncertainty and overload on systems if staffing and training is not adequate. Additionally, when new computers, printers, software, etc. are introduced this can change the way the work is processed and create uncertainty.

Dawson and Buchanan's (2005) discussion of organizational and technological change in corporations states "that change has to be understood in terms of the multi-level interactions between substance, context, implementation process, and organization politics over time" (p. 851). This parallels with Carayon and Karsh's view that change can create stress on systems, staff, and even the clients of an organization. This view of change creating stress is true of any organization in a for profit or not for profit world.

Deiss (2004) concisely describes technological innovation and the implications that surround change. The author comments: "the tension between innovation and status quo is such that innovation is often seen as disruption" (p. 22). The perception that the newly introduced technology will be more trouble than it is worth in an organization. Once the new technology is

implemented, the bugs worked out, and everything is running smoothly it is often thought why didn't we do this sooner?

Needham's 2001 article discussed technology-related organizations and their ties to libraries. Needham, a vice-president at OCLC when this article was written, has seen that librarians often resist technological changes as well as the leadership needed to introduce them. He stated,

One obstacle is the distrust of leadership that seems to manifest itself in librarians whenever someone asserts such a role. In several organizations . . . the attempt to provide leadership among librarians has been compared to herding cats. (p. 148).

This begs the questions is there a distrust of leadership in librarianship or is this a deficiency of the educational process? The Gates Foundation has become a leader in getting public access computers and Internet connections to small rural public libraries. Prior to the Gates Foundation influence with money and equipment, many small and medium sized public libraries did not have public access computers with Internet connectivity because they could not afford it.

Prior to 1997 according to Bertot, McClure and Zweizig in the National Commission of Library and Information Science (NCLIS) funded research; libraries that served a population of over 100,000 were more likely to adopt Internet connectivity than libraries serving a smaller population. There were according to the authors a number of drivers for these decisions (Bertot, McClure & Zweizig, 1996). One of these the vision of either the leadership or the library board or the desire of the community the library served (Bertot, McClure, & Zweizig, 1996). These factors were less important to libraries serving smaller communities because funding for the technological innovation was not always available.

### *Organizational Change*

#### *Major Theorists in Organizational Change*

Many of the organizational theorists that will be discussed come from a common background that started with Kurt Lewin. Lewin's work had a profound impact on social psychology and on experiential learning, group dynamics, and action research (Smith, 2001; Lewin, 1952). Chris Argyris, Edgar Schein, Warren Bennis, and Rosabeth Moss Kanter are among those who have been influenced by Lewin's research into group dynamics and action research. Each of those researchers listed used what they learned from Lewin and applied it in different ways.

Chris Argyris (1993) is known for organizational learning with his coauthor Donald Schön (1978; 1996) where they looked at the process of single and double loop learning. Argyris' and Schön's (1978; 1996; Argyris, 1993) model theory proposes a need to turn an organization into one that is capable of learning and to overcome barriers to organizational change. In essence, the theory uses the process of interviews to figure out the dysfunctional behavior and defensive routines that has occurred at the organization and how to work toward double loop learning also called Model 2 theory in action to assist individuals to begin to improve their effectiveness. This method is what Peter Senge (2000) built upon for his book *The Fifth Discipline*.

Edgar Schein's (2003) book *Organizational Culture and Leadership* (3<sup>rd</sup> ed.) looks at organizations from the standpoint of group members and culture. Additionally, he has come up with different levels of culture that determine the degree to which a cultural phenomenon is visible to an observer (Schein, 2003, p. 25). Different theorists do not agree on a definite meaning for culture (Bolman & Deal, 2003; Cameron & Quinn, 1999; Schein, 2003). Schein's definition is as follows:

The culture of a group can now be defined as a pattern of shared basic assumptions that was learned by a group as it solved its problems of external

adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new member as the correct way to perceive, think, and feel in relation to those problems (p. 17).

This definition of culture of a group ties directly back to Kurt Lewin's research into group dynamics. As each individual public library can be considered a group that is run separately each one of them can have its own culture and group identity that is unique. The concept would even be true when looking at a large library system that has a main branch with outlying branches in the suburbs. Each group would have its own environment and subculture that is separate and different from the environment of the main library system. Each public library culture and group would respond differently to changes in work processes and technology. These differences between the public library groups would come out in small group interviews.

Schein notes that there are different levels of culture within the group or organization that is observable to an outsider who is looking in. These can include technology, rituals, ceremonies, visible products of the group also known as artifacts. Artifacts can be anything that one can see, hear, and feel when encountering a new group with an unfamiliar culture (Schein, 2003, p. 25). The artifacts while visible can be difficult to decipher but easy to see.

**Table 2: Levels of Culture<sup>6</sup>**

Artifacts	Visible organizational structures and processes (hard to decipher)
Espoused Beliefs and Values	Strategies, goals, philosophies (espoused justifications)
Underlying Assumptions	Unconscious, taken-for-granted beliefs, perceptions, thoughts, and feelings (ultimate source of values and action)

<sup>6</sup> Schein, E. H. (2003). *Organizational culture and leadership* (3<sup>rd</sup> ed.). San Francisco: Jossey-Bass, p. 26. Used with permission

Taking the group to the next level includes looking at the espoused beliefs and values each one has. The group ultimately reflects someone's original beliefs and values, their sense of what ought to be, as distinct from what is (Schein, 2003, p. 28). The bottom line values that exist in a group form how the group forms and validates the beliefs, strategies, goals, and philosophies that are inherent to the group. An example of this comes from ethnic groups that bond in a common goal of some kind. Volkan (2004) cites the example of when Slobodan Milosevic was able to get the Serbian people to emotionally bond over a chosen trauma that occurred 600 years ago and to move forward with the ethnic cleansings that occurred because it validated the beliefs, goals, and philosophies that were common to the group. While the Milosevic example is extreme, it shows how a group can validate beliefs that will move them forward towards a common goal.

Schein (2003) says that in a social unit, basic assumptions have become so taken for granted that one finds little variation within that unit (p. 31). The degree of consensus that is available within the group results from repeated success in implementing certain beliefs and values (Schein, p. 31). The basic assumptions tie to what Argyris calls theories-in-use – the implicit assumptions that actually guide behavior, that tell group members how to perceive, think about, and feel about things (Argyris & Schön, 1978; 1996; Argyris, 1993).

Schein gives a good frame when looking at a work environment that is made up of people who are in groups. He understands group dynamics and how the culture and environment of the group impacts the organization (Schein, 2003). For this study, the insight Schein sheds on the topic is invaluable. Using the combination of grounded theory and phenomenology will enable the researcher to use the participants' lived experiences when the public access computers were brought into the public library. This changed the levels of culture that Schein discusses

when looking at the underlying assumptions and espoused values and beliefs of the group. The employees that work in the public library make up the group that contributes to the group dynamic in the library as a whole. As noted in the Table 2 above, each group has underlying assumptions that they work under whether the group or unit members are conscious of it or not. This in turn feeds into the espoused values and beliefs that then permeates the entire library. When a new process is brought into the library, this changes the group norms and the underlying assumptions the unit works under. How the group changes its norms as well as its espoused values and beliefs is what this research is all about. So the lived experience of each person interviewed will build a story that will explain how each library's group norms changed and the documents will also back this up.

### *Leadership*

The last aspect to add into organizational culture is leadership. By leadership, most people mean the capacity of someone to direct and energize people to achieve goals (Rainey, 2003, p. 290). In an organization that is rapidly changing, a leader can guide the ship steadily, help keep everyone on an even keel, advocate successfully for the organization, and hopefully stop people from jumping overboard.

Leadership is important in an environment where change is a constant. Bennis (1999) makes the comment that "most organizations have a tough time finding the right people to lead in an environment of constant change" (p. 193) Cope and Waddell (2001) in a study of leadership styles in e-commerce stated "In an environment that is constantly changing, the role of the leader has become vital" (p. 523). It has always been vital but when the organization is constantly dealing with technology that changes every 6 to 18 months and having to make

determinations on whether or not to upgrade, a leader needs to understand their people, organization, technology, and stakeholders.

In Bennis' 1999 book *Managing People is like Herding Cats* he discusses the fact that there is a crisis in finding leaders – this is true for librarianship as well. Bennis makes a distinction between managers and leaders. “The manager does things right; the leader does the right thing” (Bennis, 1999, p. 63). Bennis has a portrait of a leader that has certain traits: “First, they have a great deal of self-knowledge. Second, they have a strongly defined sense of purpose. Third, leaders have the capacity to generate and sustain trust. Fourth, leaders have a bias toward action” (p. 163). This portrait is actually based in a study he and Bert Nanus did in 1989. Brooke Sheldon (1991) duplicated the study with library leaders and found similar traits.

It is vital for librarianship to address the need for leaders to direct the libraries of the future no matter what the sector (academic, public, school, special). Being a leader and dealing with change takes special skills. One of those skills is to enjoy constant change while being able to lead the change. Understanding that it takes vision to lead a library no matter what the size or the community is important and it ties to Schein's ideas of organizational culture. Communities are groups that exist outside the library. External groups with stakeholders who have a say in how the library is ultimately run and funded have their own group dynamics. Library leaders who understand that and takes advantage of the stakeholders will begin be able to market the changes and find the funding needed to take the library further into the 21<sup>st</sup> century.

### *Organizational Change in Academic Libraries*

There have been three case studies done in the academic libraries sphere discussing change and organizational culture (Lee, 2000; Ostrow, 1998; Varner, 1996). Ostrow's study was one of the first to look at organizational culture and technology. She used a case study method in

researching her topic and it is a seminal work in library literature on organizational culture. Soyeon Lee's (2000) dissertation used Ostrow's study as a baseline to do her own case study on an academic library researching organizational culture and change. Varner used a mixed methodology of a competing values framework (CVF) survey based upon Cameron and Quinn's (1999) methods and interviews to examine the organizational culture. Each of these dissertations were a case study of technology in an academic library and was interested in how the staff viewed it.

Varner's (1996) study was looking at new computer system that was being implemented along with many other technological challenges. He goes into depth when looking at the CVF surveys of the different work groups involved in the computer changes going on at the library involved. Without saying it, Varner emphasized Schein's three levels of culture – artifacts, underlying assumptions, and espoused beliefs and values in his findings. Varner continually discussed the need for a CVF evaluation to occur before, during, and after any organizational change occurs. While evaluating how the organizational culture is changing and adapting to a change is an excellent research focus, the CVF survey is not the only instrument that is available. While Varner used a mixed method of the CVF survey along with qualitative surveys (group surveys with the librarians and one-on-one interview with the administrator), there are other ways to get information. Varner could have looked at some artifacts as well as using the methods he did.

Ostrow's (1998) case study of the academic library she studied was through a combination of one-on-one semi-structured interviews, observations, and examining the library's official documents. During the time frame she was doing her study, the library was undergoing a technological and leadership transformation. Ostrow's findings (1998, p. 234-235) go back to

Schein's view of three levels of culture that has been explained previously but she also used a three-perspective framework. The three-perspective framework looked at the library from a more inclusive point-of-view by looking at it through an integration lens which ties to Schein; differentiation perspective which showed the existence of strong subcultures outside of and in opposition to the main culture; and a fragmentation perspective that focused on action, symbolic and ideological ambiguity (Ostrow, 1998). Ostrow's study was well done and as one of the first on organizational culture and libraries gave insight on how to tackle the complexity in the institution.

Lee (2001) fashioned her dissertation upon Ostrow's study. She used a combination of observations, surveys, and interviews. Lee used a modified version of Hofstede's value survey questionnaire and a cultural framework that was modified from Schein for setting her study parameters. The bulk of her study was based upon her field observations and the survey. Lee hoped to take the methodology from Ostrow's study to the next level in her study. She was mainly interested in the library occupation and the academic library. Lee's study looked at an academic library that had a long-term director that dictated changes in the culture and everyone else went along. The participants in the interviews felt that they were not allowed to contribute to the library culture and any changes that occurred because decisions were already made when they were announced. Anytime a case study is done it adds to the data available on libraries but it is really not generalizable to any library but the one being studied (Yin, 1993). While a survey instrument was used, it was piloted on the same library where the study was done. The level of reliability and validity in the survey instrument has to be questioned by the pilot being done at the same library where the full blown study was going to take place.

Shelley Phipps (2004) from the University of Arizona (UA) library discusses organizational change in an institution from the standpoint of network system theory using Senge, Deming, and Scholtes as the framework. Peter Senge's *The Fifth Discipline* is the application of Argyris and Schön's organizational learning methods using the theory-in-use methods of single and double looped learning repackaged into personal mastery of different techniques. W. Edwards Deming was considered a guru in the field of quality management and his teachings were first applied in Japanese corporations where total quality management (TQM) ideas came out of the applications as well as the just-in-time supply chain management theories that some U.S. corporations eventually adopted. Peter Scholtes was a disciple of Deming and often copresented with Deming in the 1980s and early 1990s. *The Leader's Handbook* was written by Scholtes to merge Deming's quality teachings with organizational development principals to create practical educational interventions (Maxwell, 1999).

Phipps operationally defined the term "system" . . . as the network of processes that provides the infrastructure or framework that supports the actual work of an organization" (p. 69). She discussed that over 10 years a change occurred at the UA library from a hierarchical, nontechnical, inward focused organization that valued collection building and was based on a service model that assumed users' dependence on mediation to a team based, shared leadership model (p.72). The question that comes to mind does the system at the University of Arizona work well? While there is not much in the literature, anecdotal evidence shows there is immense turnover in MLS holding librarians and administration that do not enjoy the team and meeting structure that is how that library is run. The study of the UA library is relevant to this research because it describes a system that totally transformed the organization. While the majority of the article discusses the successes the library achieved there were also setbacks and challenges to

overcome within the culture of the library. If looking at the UA library through Schein's lens of levels of culture the group within the organization was forced to change causing the underlying assumptions of the individuals in the institution to change. Whether or not the organizational culture change was embraced by all of the employees was not really described completely by Phipps; however, it does leave a future study that could be done.

Karen Holloway (2004) looks at organizational development in a small study she did with academic library leaders. Holloway found that technology has been a "primary driver" in managing change in academic libraries (p. 8). She discusses Charles Schwartz's (1997) edited book which involved case studies by practitioners in the field discussing organizational development in the wake of technology in academic libraries. Schwartz did a survey that found technology was one of several drivers that have moved organizations to change. Holloway did a study that confirmed her own beliefs. None of those interviewed provided any information contrary to what she had been expecting to hear.

Joan Giesecke and Beth McNeil (2004) wrote an article that discussed moving the University of Nebraska-Lincoln's library into a learning organization using Senge's book *The Fifth Discipline* as a base. Giesecke and McNeil looked at moving the library away from a hierarchical structure into a team based one similar to the University of Arizona. The authors' felt that the adaptation to a learning organization enabled the library staff to adapt to a changing environment. While looking at a learning organizational model similar to Senge's or Argyris and Schön's is a current theme that has been found in library literature, it may not be the best model for a public library. Many of the learning organizational theories espoused by academic librarians appear to be the current fad based upon the supposed success of the University of Arizona.

Kaarst-Brown, Nicholson, G. von Dran, and Stanton (2004) looked at the organizational cultures in libraries through the lens of competing values framework (CVF) and its applicability to different types of libraries (academic, public, small institutional, and digital). While incorporating Schein's levels of culture, the authors' focused primarily on CVF which looks at four cultural archetypes of clan, adhocracy, market, and hierarchy orientations based upon Cameron and Quinn's 1999 book *Diagnosing and Changing Organizational Culture*. The article was primarily attempting to put together a theoretical lens in which to evaluate libraries, however, the authors' did not undertake any studies to see if the framework would be appropriate. This theoretical lens is similar to what Varner (1999) used in his dissertation of an academic library and found it helpful in diagnosing the culture at the organization. While espousing theoretical framework is great for researchers and scholars; practitioners and other researchers would be better served if the theory was field tested as a second step before someone touts how great this theory would be for a library once implemented. In the corporate world (the researcher's main experience) most theories need to be tweaked for each individual organization prior to becoming a success as well as having total administrative and executive leadership buy in.

#### *What about Public Libraries*

There have been only four studies that looked at organizational change and public libraries that have been found in the literature. The first study by Patricia Willard (1990) entailed research in Australia during 1984-1989 to determine whether or not personal computers had made any inroads into public libraries. Willard was also interested in whether librarians saw the library moving in the direction of providing computers for patron usage in the future which was discussed above. Willard's study was interested in the diffusion of innovation with regard to

technology particularly public access computers and then attempting to predict the future through a Delphi study. When innovation is introduced into an organization, there are social implications to be considered to the larger community in the case of a public institution. The only comment Willard (1989) made was that “there was substantial agreement that society is changing rapidly and that this change will not abate” (p. 363).

The second study was by Patricia Wood (1999) and looked at the subculture of an Ohio public library relating to the introduction of a literacy program funded outside the library but using shared workspace with existing library staff. The third study was by Kumi Ishii (2004) and his dissertation studied at the public library sphere and the communication networks and their impact upon organizational change. The fourth study was an article written by the director of the Teton County Public Library system in Wyoming that discussed the organizational changes that has occurred with the adoption of the University of Arizona Model (Bernfeld, 2004). Bernfeld adopted a nonhierarchical, circular team management structure that was adapted from Shelley Phipps and others experiences at the University of Arizona.

Kumi Ishii’s (2004) dissertation used communication theory through a survey using quantitative methods to look at organizational change in a public library in Ohio. His study looked at the communication network and its impact upon organizational change by using factor analysis. His factors explained 74% of his findings but left 26% of the variance unexplained. Ishii’s findings discussed a library that was facing budget cuts and the employees trusted information received through internal workgroup channels. Ishii (2004) stated that “this unexpected result was because the questionnaire asked about the perceived quality of information about the budget cuts, and for this topic, employees were more likely to trust official announcements from the organization” (p. 99). It was 100% quantitative while interesting it

lacked the human touch and the study would have been more interesting if there have been at least some interviews to either validate or triangulate the data.

Bernfeld (2004) used Shelley Phipp's TQM framework and adapted it to her public library in Wyoming. The intent was to see if changing from a hierarchical organization to a team based structure would create a more productive and effective institution. While in her and Phipp's estimation this was achieved, it would have been helpful to have an outside researcher to come in and study the organization. If the level of changes Bernfeld believed had been achieved is true then it would have been evident through anecdotal interviews as well as physical artifacts available in the library.

As discussed above in the organizational change section, leadership is an inherent part of any reconfiguration that occurs. Many of the organizational theorists tied leadership to the change mechanisms that occurred when institutions either determined to make a change of some kind or were forced to change due to technology. In public libraries, many of the changes with technology began in the back room and eventually came out to the front of the library in the form of public access computers. Leaders in the public libraries would have a vision for where their libraries were going and what kind of services would be provided to their community.

While the other studies are important for understanding organizational change in libraries, they looked primarily at the staff of the libraries and not at the leadership structure and the decision making processes. In organizational theory, it is important to understand "why" decisions were made and how the rationale for the decisions can inform future practices. The three studies that used a case study method cannot be generalized to a larger population but only to the libraries studied (Yin, 2003). Ishii's research used survey quantitative methods in looking

at only one public library in Ohio. Wood's research like Ostrow's used ethnographic methods at an Ohio public library.

The driving force behind this study is to determine how much has organizational change in public libraries been driven by technology. It appears with the void in the literature that computers one day mysteriously appeared in libraries. The history is very sparse and what little is written focuses on the automation of the everyday behind the scene tasks of the library staff. Public access computers are a relatively new phenomenon in public libraries that have appeared over the last 15 years or so and there is little research on the subject. Some public libraries based on what little literature can be found brought public access computers into their buildings prior to 1991 and the rest after 1997 with the generosity of the Gates grants; however, this level innovation is by no means easy to track.

## **Methodology**

The library literature has very little written about public access computers and public libraries. The main theoretical emphasis will be Schein's levels of culture along with Bennis' theory of leadership. The project will look at how public access computers have impacted organizational change in public libraries. The qualitative methodology will be used on multiple methods with interviews of two groups – administrators and staff members – and analysis of artifacts.

The qualitative methodology will integrate grounded theory with phenomenology. The participants' interviews will be analyzed using grounded theory while looking at their lived experiences (Creswell, 2003; Hitzler & Eberle, 2004; Moustakas, 1994). This method enables the participants' experiences to be looked at within Schein's levels of culture to look at the underlying assumptions of the group (i.e. group of administrators or staff members) prior to the public access computers being brought into the public libraries. The participants' experiences within the group norm will also be looked at for the espoused values and beliefs that each unit has at an unconscious level. As the research progresses, the analyses will determine whether or not the group norms changed with regard to the espoused values and beliefs and the underlying assumptions. The artifacts will provide a written record that can be analyzed to check the validity and reliability of the research results.

### *Research Questions*

1. What drove the introduction of public access computers in public libraries?
2. How has the public library culture and organization changed since the introduction of computers for patron usage?

3. What arrangements have been needed to deal with the influx of computers and other technology in the public libraries?
4. What has the leadership and decision makers of the public library done to provide a vision of incorporating new technologies for patron usage?
5. How has public access computers changed the way the library is organized and how it is staffed?
6. How has funding from the Bill and Melinda Gates Foundation impacted public library organizations?

### *Qualitative Methodology*

Qualitative methods will be used for this study. Qualitative methods take place in the natural settings of the participants and focuses on participants' interpretation of events (Creswell, 2003). Interviews provide snapshots of participants' experiences in particular times and places and enable them to explain phenomena. In addition to interviews, artifacts in the forms of documents regarding organizational structure and change will be collected and analyzed. Using multiple methods will allow the data to emerge from two different forms that involve word and image data (Creswell, 2003). The use of multiple methods provides a check for both the validity and reliability of the research results. In grounded theory research, the researcher attempts to derive a general, abstract theory of a process, action, or interaction based on the views of the participants in a study (Creswell, 2003, p. 14; Glaser & Strauss, 1967; Strauss & Corbin, 1990). Phenomenology identifies the essence of human experience concerning a phenomenon as described by the participants in the study (Creswell, 2003; Hitzler & Eberle, 2004; Moustakas, 1994). This study will integrate grounded theory with phenomenology (Creswell & Brown, 1992). This study will be the phenomena that the participants describe when the public access

computers were introduced into the public libraries. Grounded theory methodology will be used to analyze the data.

Barney Glaser and Anselm Strauss originally developed grounded theory in order to study death and dying in a hospital in California 40 years ago (Glaser & Strauss, 1967; Lowe, 1996). While Glaser and Strauss worked in the sociological sphere in utilizing grounded theory, it has spread too many different fields including business, psychology, and education. In grounded theory, there are basic themes one has to do with discovering certain basic processes that result in change (Hildenbrand, 2003, p. 17). Change affects everyone differently whether it is in the social, educational, emotional, cultural, job, ad infinitum. The interviews with each group within the libraries will allow the participants to discuss how public access computers changed the public library – if it did. The other theme of Strauss’s research were derived from pragmatism and looked at the social processes within the frame of a theory of action (Hildenbrand, p. 17). The idea that creativity is needed in order to analyze the transcripts and to live in chaos for the time it takes to complete the research (Lowe, 1996).

Phenomenology is the appropriate strategy to use in the proposed study because it enables the researcher to understand the lived experiences of the participants of the study (Creswell, 2003; Hitzler & Eberle, 2004; Moustakas, 1994). Lived experiences is appropriate for this study because when looking at Schein’s levels of culture the group experience is impacted by each individual. When interviewing a small number of people to understand their experiences with technology and how it relates to the changes that were made in the public library, it is important to realize that this impacted their everyday lives for good or ill. This ability to understand what occurred in their lives is what Moustakas (1994; Hitzler & Eberle, 2004) talks about when discussing the participants and the researcher understanding the lived experience.

The use of phenomenology will enable the researcher to get the story of how public access computers came to be part of the public library at each particular location. The theme of the stories will focus the interview which in turn helps to determine which questions to ask. Focused interviews were developed in the 1940s in relation to communication research and propaganda analysis (Hopf, 2004). According to Hopf (2004) the scope of the interviews should not be too narrow so that interviewees have maximum opportunity to react to the questions (p. 205). Hopf sets out that the scope, specificity, depth, and personal contact of the group interview can help to bring out a “reserved, non-directive management of a conversation with an interest in very specific information and the opportunity for an object-related explanation of meanings” (p. 206). Organizational change at the public library was influenced and affected by the advent of public access computers. The overarching questions listed below are important to determine how the participants perceive the organizational changes have occurred in their libraries due to public access computers. Some of the other questions deal with funding by the Bill and Melinda Gates Foundation as not all libraries participated. The idea of perception of organizational change will have a different view for each group – administration and staff members – depending on how they were personally affected by it.

1. How has the public library culture changed since the introduction of public access computers for patron usage?
2. What arrangements have been needed to deal with the influx of public access computers and other technology in your public libraries?
3. What has the leadership of the public library done to provide a vision of incorporating new technologies for patron usage?

4. Information technology and organizations have become wedded in the minds of many organizational theorists. How has information technology impacted your organizational culture?
5. How has the structure changed at your library over the last 10 years? In what way?
6. What has been the biggest impact to organizational culture that you believe public access computers has had?
7. Did your library participate in the original Gates Foundation grants for computer hardware and software? Why or why not?
8. Is your library currently participating in the current round of Gates Foundation grants for upgrades to the initial computer hardware and software? Why or why not?

What happens in an interview is unscripted and no one knows what will occur. After interviewing at a couple of libraries, there may be new probes that emerge and reinterviewing may need to occur. Interviewing is an iterative process and will develop as the project moves forward. If follow up interviews are needed depending on the depth of the questions, will determine whether or not they will be done using phone interviews or on a revisit to the library.

### *Participants and Setting*

This study will be conducted in approximately 20 different public library sites in four different Midwestern states. Each public library is located in close proximity (driving distance) to the researcher and will facilitate the ease of conducting the research. Each library serves a population of between 25,000 and 99,999. To get input from organizational leaders, the sample population was limited to library directors and library system staff. Branch libraries were eliminated from consideration. Branch libraries were eliminated because they do not have the final decision making authority when it comes to technology.

These particular size criteria were selected in order to identify public libraries large enough to have a significant investment in computers and other components for the public to use. Besides public access computers, the other components will include scanners and printers.

Table 2: Public Library Population for Four States<sup>7</sup>

Population	State				Total
	Iowa	Kansas	Missouri	Nebraska	
Less than 1,000	108	143	5	153	412
1,000 – 2,499	230	84	26	67	407
2,500 – 4,999	94	44	26	18	182
5,000 – 9,999	55	24	25	17	121
10,000 – 24,999	30	17	26	9	86
25,000 – 49,999	14	7	15	6	42
50,000 – 99,999	7	1	9	0	17
<b>25,000 – 99,999</b>	<b>21</b>	<b>9</b>	<b>24</b>	<b>6</b>	<b>59</b>
100,000 – 249,999	2	3	5	0	10
250,000 – 499,999	0	2	2	2	6
500,000 – 999,999	0	0	2	0	2
1,000,000+	0	0	0	0	0
<i>Total</i>	<i>540</i>	<i>325</i>	<i>140</i>	<i>272</i>	<i>1,277</i>

Using the *American Library Directory* and Hennen's American Public Library Ratings (HAPLRs) online, there are a total of 59<sup>8</sup> library systems listed in the states of Iowa, Kansas, Missouri, and Nebraska. Directors' names and address will be found using state library databases for Iowa, Kansas, Missouri, and Nebraska.

There are a total of 59 libraries to be chosen from. It will be a random sample beginning with the state with the smallest number of libraries. The other sampling goal is to have the same number of libraries in each state. In this case, Nebraska has six libraries that fit the population criteria. So each library director will be called and asked to participate in the project through a

<sup>7</sup> Source: Chute, A., Kroe, P. E., O'Shea, P., Craig, T., Freeman, M., Hardesty, L., et al. (2006). *Public libraries in the United States: Fiscal year 2004* (NCES 2006-349). U. S. Department of Education. Washington, DC: National Center for Education Statistics.

<sup>8</sup> Hennen's American Public Library Ratings (HAPLRs) data is from 2006 is more up-to-date than anything else available at this time.

script that was approved through IRB and is located in Appendix B. Twenty libraries is a goal. For example, if only three libraries in Nebraska agree to be interviewed, this will limit the number of libraries in each state to three.

Institutional memory is critical to this project. If the director does not have longevity at the public library, the director will be asked to choose another administrator(s) that does have service of at least 10 years or more. The staff members to be interviewed should also have long institutional memory. The study is attempting to go back in time through people's perceptions of what happened when public access computers were brought into the library. Statistics regarding public access computer (60.4%) and Internet connectivity (72.3%) show that by 1997 the majority of libraries came online while there were some earlier adapters (Bertot, McClure, & Fletcher, 1997). As 1997 was 10 years ago, this necessitates finding employees at the public libraries being studied having institutional memory.

#### *Semi-Structured Interview Design*

Semi-structured small group interviews will be done with two different groups at each library. There will be one group consisting of administrators and another of staff members. The two groups are necessary in order to protect the staff members from being put in a negative power relationship with the administrators who have ultimate determination over the staff members' future at the library. The same questions will be asked of each participant in the groups. The reason for administrators is to get information regarding the administration's point of view of technology and organizational change. The staff members may have a different view of what occurred when public access computers were put into place.

In order to have a level of reliability and validity, each participant will be given a copy of their transcript prior to second interviews to make sure they agree to what was said. Use of

member-checking to determine the accuracy of the findings by taking the specific descriptions or themes back to participants and letting them determine whether they are accurate (Creswell, 2003, p. 196). A second member check will be to send an electronic copy of the dissertation to each public library director to allow each participant to make sure they are not identified. Along with member checking, there will be triangulation from different data sources (interviews and artifacts) and using these different sources to build a coherent justification for themes (Creswell, 2003). *Artifacts*

The purpose of document analysis is to determine the social facts of the organizations under study (Atkinson & Coffey, 2004). Like junior accountants follow audit trails prior to becoming CPAs through financial documents, there should be a transaction through the artifacts of an organization (Atkinson & Coffey). As Atkinson and Coffey commented “investigative procedures are predicated on the on the assumption that there are and should be regular, identifiable relationships between documentary records” (p. 67). This principle of sequence and hierarchy enables a document, for example a draft of a job description, that will later show up in an organizational chart, minutes of staff meetings, finalized version of the job description, and board minutes. Analyzing and collecting the artifacts of the public libraries show the visible organizational structures and processes and ties into Schein’s (2003) levels of culture. The artifacts are another layer of the group culture of the organization.

When the interviews are set up, the director will be asked for copies of the following documents for the researcher to take back:

1. Organizational charts
2. Mission statement
3. Goals and objectives
4. Job descriptions
5. Reclassification of jobs
6. Organizational restructuring

7. Formation of new departments
8. Budgets with line item detail
9. Financial statements
10. Strategic plans
11. Board meeting minutes

The documents cannot be older than 1994. The intention is to look at the documents to discover what has occurred over a period of 12 years at the libraries in regard to the introduction of public access computers in the library.

By looking at artifacts, this will allow the researcher to triangulate the data retrieved from the interviews to determine if the text information is saying the same thing. An example of this would be a transcript where a participant explains how their job description has changed and an actual job description document that details the changes for that reference librarian. The ideal in having an artifact and an interview correlate in this manner would show the shift in the organizational change. Whether or not the artifacts actually verify verbatim what is said in the interviews depends on the outcome of the research.

### *Data Collection Procedures*

#### *Types of Data*

##### *Interviews/Transcripts*

The interviews will be semi-structured group interviews with a public library administrative staff member and one or two other staff members within each of the approximately 20 libraries chosen in a purposive sample. These interviews will be conducted face-to-face and recorded by a digital recorder. Ethnographic notes from observations of the interviewee as well as notes from the interview will be recorded before, during, and after the interview in order to key memory items that occurred during the interview. The interviews should last approximately 60 to 90 minutes. The interviews will be transcribed by the researcher

or qualified transcriber. Content analysis procedures will be used to assess the impact of the addition of public access computer on library workers perceptions (Mehring, 2004). The data will be stripped of all identifying information on all participants and library systems so that it will be kept confidential. Pseudonyms will be used for all library systems and staff members participating in the study.

### *Artifacts*

The artifacts will be given to the researcher by the directors of the public libraries. The documents are publicly available information that focus on the running of a locally run government agency through either a city or county entity. The documents will shed further light on how the introduction of public access computers has impacted or influenced the organizational change in the public library. Although asking an institution to go back over 12 years to find documentation can be inconvenient, it will give invaluable information that may not be available any other way. Memories of events can be hazy or things can be forgotten through the fog of time by individuals but documents or artifacts can provide a written record that does not have the problem of lack of memory of what had happened (Wolff, 2004; Creswell, 2003). For example, a comparison of a 10-year-old organizational chart to a current one may quickly reveal how the organization has changed.

### *Data Analysis*

#### *Interview Data*

The interview data will be transcribed by the researcher or a qualified transcriber. Once the interviews are transcribed, the interviews will be set aside. Then the interviews will be read with no intention to code the data. At that point, the goal is immersion into the data and to read it to find out what the participants in the interviews knew and how they answered the questions.

Again, the data will be set aside for a short period of time. This break gives the researcher time to let the data percolate in the mind before coming back and starting the initial coding of the data.

When using content analysis the goal is to find discrete ideas within the interviews in order to label them and organize them into categories of actions and roles or what is known as open coding (Böhm, 2004; Creswell & Brown, 1992; Strauss & Corbin, 1990). The categories will be converted into typologies. The ability to go through the data numerous times will enable the researcher to step away and then come back to it with fresh eyes. For this study, the researcher wants to discover what phenomena come out through the data from the subjects' point-of-view. What occurred in the library when public access computers were introduced for patron usage and how that changed the organization is important. One caveat is what is remembered by the participants may be hazy especially for the information that reaches back in time. Hopefully, as the interview progresses it will become clearer to the participant and they will be able to remember more of the incidents that occurred at that the time.

The next phase will be to go through the data with the intent to finding contextual factors that link the categories that show connections through the conditions (Böhm, 2004; Creswell & Brown, 1992; Strauss & Corbin, 1990). Finding contextual factors enables the researcher to begin to develop storylines for each of the participants in order discover what each had experienced when the public access computers had been initially installed in the libraries. When working with interview transcripts, the data will need to be gone over multiple times and coded. The coding will be refined with each pass through the data while the categories and stories come up through the data.

### *Artifacts*

Anyone who reads documents as a basic representation of *something else* is looking at them as a “window pane” (Gusfield, 1976, p. 16) through which one is looking at a person, an action, or a fact (Wolff, 2004, p. 284). Wolff (2004) suggests that the artifacts be initially read through aloud with no intention to initially code the data. It is planned to follow Wolff’s suggestions. As with the interview data, the intent will be to become familiar with the documents and perhaps organize them in some manner that will make it easier to work with them. At this point the data will be set aside for a few days. When the data is picked up again it will be with the intention to code using discourse and/or content analysis to determine what information is in the documents. The initial coding will be looking for categories where actions or processes have taken place in regards to information technology that has impacted or influenced organizational change. For a fictional example, perhaps looking at two job descriptions over a period of 10 years shows a considerable change in the tasks of reference librarians that can be attributed to information technology. This finding would be important to this study.

After reading the documents, each set for each library they will be compared to see what changes there are between them if any. The differences between the documents will be coded to determine what types of changes have occurred. The documents will also be compared and contrasted to what has been said by the interview participants to see if there are similarities or differences between them (Wolff, 2004; Flick, 2004; Creswell, 2003).

### *Limitations and Biases*

One limitation is that there could be lapses in the documents found in each library. Expecting a library to keep over 12 years worth of administrative documents on site in an archive is hopeful at best. Some of the documents may not be available at the library but in a city or

county run archive. Another possibility will be that the documents may not have been kept at all and the researcher will need to work with a shorter time span of documents than 12 years.

Using interviews with a qualitative method limits the way the data can be extrapolated to the rest of the public library population (Yin, 2003). This data will be considered valid only for the public libraries that have been involved in the study.

As with any research endeavor whether it is done through using quantitative or qualitative methods, it shows a snapshot in time and cannot be easily generalized to all situations.

## Appendix A Semi-Structured Interview Questions

1. How has the public library culture changed since the introduction of public access computers for patron usage?
2. What arrangements have been needed to deal with the influx of public access computers and other technology in your public libraries?
3. What has the leadership of the public library done to provide a vision of incorporating new technologies for patron usage?
4. Information technology and organizations have become wedded in the minds of many organizational theorists. How has information technology impacted your organizational culture?
5. How has the structure changed at your library over the last 10 years? In what way?
6. What has been the biggest impact to organizational culture that you believe public access computers has had?
7. Did your library participate in the original Gates Foundation grants for computer hardware and software? Why or why not?
8. Is your library currently participating in the current round of Gates Foundation grants for upgrades to the initial computer hardware and software? Why or why not?

## **Appendix B**

### **Telephone script to obtain interviews from Public Library Directors and their staff:**

I am a doctoral candidate at the University of Missouri-Columbia conducting research on technologies impact and influence upon organizational culture on public libraries particularly as it pertains to public access computers. These interviews are being done in connection with my dissertation research.

I would like to conduct the interviews with two people including you (the director) and one other person who has been at your library at least 10 years who would have information regarding any changes that has occurred at your library regarding changes in technology that has occurred in the last 10 years at your library and ask 5 to 6 questions related to my research questions which are:

1. What drove the introduction of public access computers in public libraries?
2. How has the public library culture and organization changed since the introduction of computers for patron usage?
3. What arrangements have been needed to deal with the influx of computers and other technology in the public libraries?
4. What has the leadership and decision makers of the public library done to provide a vision of incorporating new technologies for patron usage?
5. How has public access computers changed the way the library is organized and how it is staffed?
6. How has funding from the Bill and Melinda Gates Foundation impacted public library organizations?

The intention behind the questions is to find out how public access computers in particular have impacted organizational change and culture in public libraries. The interviews would be conducted at your convenience at your library and would take approximately an hour to 90 minutes. The interviews would be audio taped. All information regarding the participants and the library would be kept confidential. In the results reported in my dissertation all information would be disguised by using code names for the participants and the library.

Additionally, I would need to obtain some documents dating from 1994 to present from the library in order for me to compare the progress of the library in regards to information technology and organizational change. The documents would include:

1. Organizational charts
2. Mission statement
3. Goals and objectives
4. Job descriptions
5. Reclassification of jobs
6. Organizational restructuring
7. Formation of new departments
8. Budgets with line item detail
9. Financial statements
10. Strategic plans
11. Board meeting minutes

.Would you and your library be interested in participating in the research?

[Whatever the outcome, yes or no]

[Yes, they are interested.]

**If the answer is yes, they will participate:**

When is a convenient time and day for you and whoever else will be participating in the interview?

[Answer]

Great.

Please remember to have the documents requested available and I will see you on DAY and TIME.

Thank you for agreeing to participate in the research. Hope you have a great day.

**If the answer is no, they will not participate.**

Thank you listening to my information. Hope you have a great day.

## Appendix C

### Email script to confirming interviews to Public Library Director of [Name of Library]:

This email will confirm the telephone conversation between me and [Name of the Director] regarding the research I will be conducting technologies impact and influence upon organizational culture on public libraries particularly as it pertains to public access computers.

Interviews will be conducted between the library director, [names], and me on [Day], [Month Day, Year] at [time]. Additionally, [name of employee] will be interviewed as well on the same day at [time].

As discussed I need to obtain copies of the following documents from 1994 to present:

1. Organizational charts
2. Mission statement
3. Goals and objectives
4. Job descriptions
5. Reclassification of jobs
6. Organizational restructuring
7. Formation of new departments
8. Budgets with line item detail
9. Financial statements
10. Strategic plans
11. Board meeting minutes

Thank you in advance for agreeing to participate in my dissertation research. I appreciate the time that you and [names] will be taking to answer my questions. If you have any questions, please do not hesitate to contact me by email at [dlvwcc@mizzou.edu](mailto:dlvwcc@mizzou.edu) or via my cell phone at 573-356-8107.

Diane Velasquez  
Doctoral Candidate  
University of Missouri – Columbia  
School of Information Resources & Learning Technologies (SISLT)  
111 London Hall  
Columbia, MO 65211

## **Appendix D**

### **Email script to obtain interviews from Public Library Directors and their staff:**

I am a doctoral candidate at the University of Missouri-Columbia conducting research on technologies impact and influence upon organizational culture on public libraries particularly as it pertains to public access computers. These interviews are being done in connection with my dissertation research.

I would like to conduct the interviews with two people including you or some other administrator and one other person who has been at your library at least 10 years who would have information regarding any changes in technology that has occurred in the last 10 years at your library and ask 5 to 6 questions related to my research questions which are:

1. What drove the introduction of public access computers in public libraries?
2. How has the public library culture and organization changed since the introduction of computers for patron usage?
3. What arrangements have been needed to deal with the influx of computers and other technology in the public libraries?
4. What has the leadership and decision makers of the public library done to provide a vision of incorporating new technologies for patron usage?
5. How has public access computers changed the way the library is organized and how it is staffed?
6. How has funding from the Bill and Melinda Gates Foundation impacted public library organizations?

The intention behind the questions is to find out how public access computers in particular have impacted organizational change and culture in public libraries. The interviews would be conducted at your convenience at your library and would take approximately an hour to 90 minutes. The interviews would be audio taped. All information regarding the participants and the library would be kept confidential. In the results reported in my dissertation all information would be disguised by using code names for the participants and the library.

Additionally, I would need to obtain some documents 1994 to present from the library in order for me to compare the progress of the library in regards to information technology and organizational change. The documents would include:

1. Organizational charts
2. Mission statement
3. Goals and objectives
4. Job descriptions
5. Reclassification of jobs
6. Organizational restructuring
7. Formation of new departments
8. Budgets with line item detail
9. Financial statements
10. Strategic plans
11. Board meeting minutes

Would you and your library be interested in participating in the research? If yes, I would follow up with a phone call at your convenience.

Diane Velasquez  
Doctoral Candidate  
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Cell: 573-356-8107  
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Appendix E  
Consent Form

Consent Form for Participation in a Research Project  
University of Missouri – Columbia

**Student Researcher:** Diane L. Velasquez

**Study Title:** The Technological Influence and Impact upon Organizational Change in Public Libraries

Invitation to Participate: You are invited to participate in the semi-structured interviews in this study.

Purpose: The purpose of the study is to research technological influences upon organizational change in public libraries for a dissertation. The focus of the dissertation is on library directors, administrators, and other staff members...

Description and procedures: The procedure for the semi-structured small group interview is to ask questions related technology and organizational change. The researcher will send copies of the transcript(s) for the participant to read and review. The review of the transcripts will allow the participant to make any comments or questions.

Risks and inconveniences: There are no risks. Inconvenience is one of using up time of the respondents.

Benefits: To further research public libraries and to gain information about information technology and organizational change.

Confidentiality: All library directors and other staff members choosing to be interviewed will have their names and place of employment be held in confidence and private. When describing the findings from the interview data all names of people and places will be changed to protect them.

Voluntary Participation: All participation in this study is voluntary. If you do not want to be in this study you do not have to be. If you agree to be in the study but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide you do not want to participate in this study.

Do you have any questions?

Take as long as you like before you make a decision. I will be happy to answer any questions you have about this study. If you have questions regarding your rights as a research participant, please contact the University of Missouri-Columbia Campus Institutional Review Board at 573-882-9585. You may reach the student researcher, Diane Velasquez, by calling 573-356-8107 or by emailing me at [dlvwcc@mizzou.edu](mailto:dlvwcc@mizzou.edu). My dissertation supervisor, John M. Budd, will also be available for questions by calling 573-882-3258 or by emailing him a [buddj@missouri.edu](mailto:buddj@missouri.edu).

**Authorization:**

I have read this form and decided that \_\_\_\_\_ will  
*(name of subject)*  
Participate in the project described above. Its general purposes, the particulars of involvement  
and possible hazards and inconveniences have been explained to my satisfaction. My signature  
also indicates that I have received a copy of this consent form.

Signature: \_\_\_\_\_

Relationship: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
~~Signature of Person Obtaining Consent~~

Appendix F  
IRB Approval

**Campus Institutional Review Board**

University of Missouri-Columbia

483 McReynolds Hall  
Columbia, MO 65211-1150

PHONE: (573) 882-9585  
FAX: (573) 884-0663

Project Number: **1077898**

Project Title: Technological Influence and Impact on Organizational Structure and Change in Public Libraries

Approval Date: 11-02-2006

Expiration Date: 11-02-2007

Investigator(s): Budd, John M  
Velasquez, Diane Lynn

Level Granted: Exempt

**CAMPUS INSTITUTIONAL REVIEW BOARD APPROVAL FORM  
UNIVERSITY OF MISSOURI-COLUMBIA**

This is to certify that your research proposal involving human subject participants has been reviewed by the Campus IRB. This approval is based upon the assurance that you will protect the rights and welfare of the research participants, employ approved methods of securing informed consent from these individuals, and not involve undue risk to the human subjects in light of potential benefits that can be derived from participation.

Approval of this research is contingent upon your agreement to:

- (1) Adhere to all UMC Policies and Procedures Relating to Human Subjects, as written in accordance with the Code of Federal Regulations (45 CFR 46).
- (2) Maintain copies of all pertinent information related to the study, included but not limited to, video and audio tapes, instruments, copies of written informed consent agreements, and any other supportive documents for a period of **three (3) years** from the date of completion of your research.
- (3) Report potentially serious events to the Campus IRB (573-882-9585) by the most expeditious means and complete the eIRB "Campus Adverse Event Report". This may be accessed through the following website: <http://irb.missouri.edu/eirb/>.

(4) IRB approval is contingent upon the investigator implementing the research activities as proposed. Campus IRB policies require an investigator to report any deviations from an approved project directly to the Campus IRB by the most expeditious means. All human subject research deviations must have prior IRB approval, except to protect the welfare and safety of human subject participants. If an investigator must deviate from the previously approved research activities, the principal investigator or team members must:

- a. Immediately contact the Campus IRB at 882-9585.
- b. Assure that the research project has provisions in place for the adequate protection of the rights and welfare of human subjects, and are in compliance with federal laws, University of Missouri-Columbia's FWA, and Campus IRB policies/procedures.
- c. Complete the "Campus IRB Deviation Report". This may be accessed through the following website: <http://irb.missouri.edu/eirb/>.

(5) Submit an Amendment form to the Campus IRB for any proposed changes from the previously approved project. Changes may not be initiated without prior IRB review and approval except where necessary to eliminate apparent and immediate dangers to the subjects. The investigator must complete the Amendment form for any changes at <http://irb.missouri.edu/eirb/>.

(6) Federal regulations and Campus IRB policies require continuing review of research projects involving human subjects. Campus IRB approval will expire one (1) year from the date of approval unless otherwise indicated. Before the one (1) year expiration date, you must submit Campus IRB Continuing Review Report to the Campus IRB. Any unexpected events are to be reported at that time. The Campus IRB reserves the right to inspect your records to ensure compliance with federal regulations at any point during your project period and three (3) years from the date of completion of your research.

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Kate Williams

Social Networks and Social Capital:  
Rethinking Theory in Community Informatics

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### Social Networks and Social Capital: Rethinking Theory in Community Informatics

The emergence of community informatics as a research community was a response to the practical experience of communities adapting to the rapid changes brought on by new information technologies, known outside the United States as information and communications technologies. Based on a growing empirical literature we can begin to find patterns consistent with fundamental theoretical formulations. In this article, we are concerned with the related theories of social capital and social networks as taken up in community informatics scholarship. We review these theories carefully rather than taking concepts for granted. In the end, we hope that this analysis can help usher in a new stage of community informatics research, where empirically testing theoretical propositions can be the basis for research design.

Theory in community informatics is necessary in order to give coherence to what we know about technology in communities, as well as to help to relate this knowledge to all other aspects of our social experience. In this sense, theory is needed inside community informatics as well as in relating our field to other research foci, be they social informatics or many other lines of research into the information society.

This paper relies on and contributes to three threads of scholarship: social capital, social networks, and most of all community informatics itself. Each of these threads, or bodies of literature, is a contested space where different theoretical and/or research issues are debated. We will summarize these three literatures and discover a basic question in each literature that is key to the possibility of a theoretical synthesis for community informatics. This research aims to contribute to these threads by targeting key contradictions in current theory and pointing toward a new theoretical synthesis based on empirical investigation. Three strong and complementary analyses regarding the interaction of social capital and information technology in local communities can be found in Simpson (2005), Gaved and Anderson (2006), and Anderson et al (2006). An early version of this article appeared in Williams (2005).

#### Social Network Theory

Social network theory contrasts with the type of sociological theory that defines society as built up of individuals. It starts instead from the relations between individuals, and models society as constituted of networks made up of sets of the relations or ties between the nodes. Wasserman and Faust (1999, p. 4) identify four additional fundamental principles of models built using social network theory: independence of actors; relations or ties consisting in the flow or transfer of resources; the constraining and/or enabling of individual actors by networks; and the generation of long-lasting ties and networks by social structures.

The perspective of social network analysis—which comprises both method and theory—mitigates against studying any single relationship in isolation from the network of which it is part. This is because the *dyad*, or relationship between two actors, is the building block of a network, but is itself conditioned by the network.

Across social network studies, the actors or the nodes have been variously defined as individuals, groups, companies, or even countries. The relationship or tie is a flow of resources that can be material or non-material (Wasserman & Faust 1999, p. 4). The resources might

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include social support, emotional support, companionship, time, information, expertise, money, business transactions, shared activity, and so on.

Wellman, Carrington, and Hall (1988) characterized social network theory not so much as competing directly with other approaches to identifying causality as

reformulating basic questions. Thus, social network theorists have proposed, for example, substituting world systems theory for single state modernization theory, network communities for neighborhood communities, political networks for psychologistic interpretations of collective behavior, and vacancy chain analysis for individualistic analyses of social mobility. (Wellman et al., p. 48)

In a social network, every node is not tied to every other node. This results in any given network having particular features. Clusters of densely knit areas are where many actors are tied to each other, as, for example, a family. These clusters are connected to other clusters via sparsely connected areas that form what are called bridges, as can be seen in Figure 1 (a) below. The clusters themselves may be more or less visibly bounded, or fuzzy, as in an extended family where you might (or might not) include ex-spouses and fiancés.

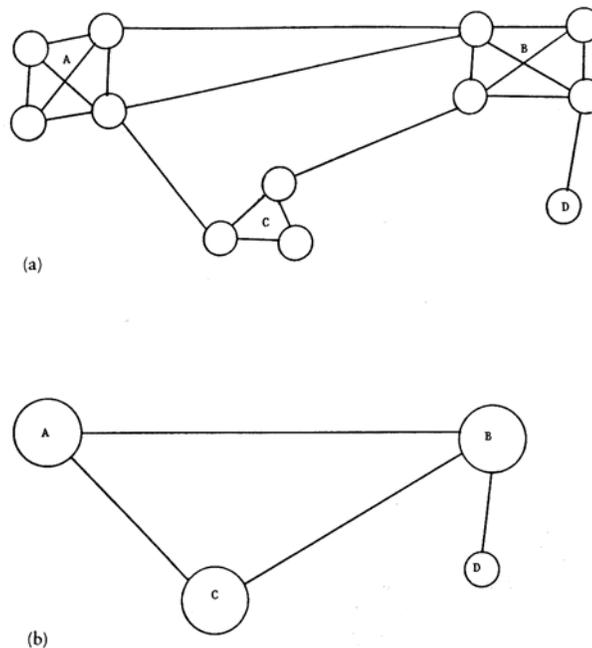


Figure 1. Networks as ties between people, illustrated in (a) below, or as ties between clusters of people, as in organizations, illustrated in (b) below. From Figure 2.4, Wellman and Berkowitz, 1988, p. 45.

Resources shared across ties are generally finite, and therefore scarce. As a result, the property of hierarchy enters an otherwise neutral network structure. In this context hierarchy describes the fact that some nodes are at the center of a network and others are less connected and peripheral. Because resource flow generally attenuates as it travels from node to node, an actor's position—as a bridge, or near a bridge, at the edge of a cluster or at the center of a cluster, influences his or her access to resources.

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In addition to hierarchy, two other characteristics of social networks will inform the analysis in this paper: transitivity and homophily. Transitivity means that if A is tied to B, and A is tied to C, it is likely that B is tied to C. Granovetter's work (1973, 1983, 1974/1995) on weak ties, to be discussed below, follows from this principle. Homophily reflects that a person's ties tend to be with people like them. So our personal networks tend to be homogeneous and defined by the following characteristics, in ascending order: gender, occupation, education, religion, age, and most of all race and ethnicity (McPherson, Smith-Lovin, & Cook, 2001).

Finally, two overarching approaches characterize social network analysis. Whole network analysis looks at the network from the outside, with all the data that one chooses to collect on each tie and each node. Personal or egocentric network analysis looks at the network from the inside, with all the data that one chooses to collect on one node (also called *ego*) and its ties (*alters*).

### *Personal networks*

Wellman's studies of personal networks in East York, Canada, exemplify this egocentric network approach (Wellman, 1979; Wellman & Leighton, 1979; Wellman et al., 1988; Wellman & Wortley, 1990; Wellman & Hogan 2006). Wellman and his research team collected data on the personal ties of residents of a working-to-middle class Toronto locale. In 1968 these researchers surveyed 845 people about their six closest relationships and analyzed these partial personal networks. In 1978 they interviewed and surveyed 33 people about their current ties, focusing in their analysis on the reported 403 *significant* ties. The research started from a network concept of community, defining community as a set of relationships between people.

Wellman asked: what is community in a "large scale division of labor"—an industrialized metropolis, a so-called mass society? Is community lost, saved, or liberated? Lost would mean that individuals are not connected to each other and depend on bureaucratic resources for help. Saved would mean that people still live in solidarities—the densely knit and geographically bounded networks seen as typical of small settlements and preindustrial societies. Liberated would mean that people are neither embedded in solidarities nor alienated, but instead choose their own communities.

In the analysis, East Yorkers' communities were either lost, saved, or liberated, generally according to their position in the division of labor. Unemployed men and skilled tradesmen lived in *community lost* (they were self-sufficient or fended for themselves); people near kin or in workplaces that encouraged collegiality lived in *community saved*; and people climbing an occupational ladder lived in *community liberated*.

It is important to note that even those living in community lost, without social ties, were likely to get their needs met. Unless they meet their own needs, like the skilled carpenter who repairs his own home, they likely use what community studies (e.g. Gans, 1962/1982) called *formal bureaucracies*. Bureaucracy is a form of organization that is, for the purpose of most community studies, tie-free. An individual with no personal ties can still get resources from any number of institutions: banks, supermarkets, psychiatric clinics, real estate agencies, welfare departments, schools, libraries, public transit systems, and so on—although often money is required.

Altogether, East Yorkers' ties were to kin, family, neighbors, co-workers, and (in the case of a very few) to fellow members of voluntary or civic organizations. Graphic depictions of

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personal networks, as in Figure 2 below, were a part of Wellman's analysis. The majority of the ties were within metropolitan Toronto but outside of a one-mile radius of home; transportation and communications technology had loosened (but not separated) people from their immediate neighborhoods. (Homemakers were most likely to have neighborhood ties.) Face-to-face and phone were the most typical modes of contact, and different contexts served for different ties, rather than a collective setting bringing many ties together. The ties were long-lived, with only one-quarter less than 10 years in duration. Four-fifths of the ties were transitive and embedded—in other words, a vast majority of East Yorkers' ties were also tied to each other. The content of the ties—the resources shared—were sometimes multidimensional and sometimes focused, but generally consisted of companionship, emotional support, and small-scale services. Specialized information emerged (but infrequently) as tie content: for example, two people were involved in community organizations, an animal rights activist and the mother of a child with a health condition.

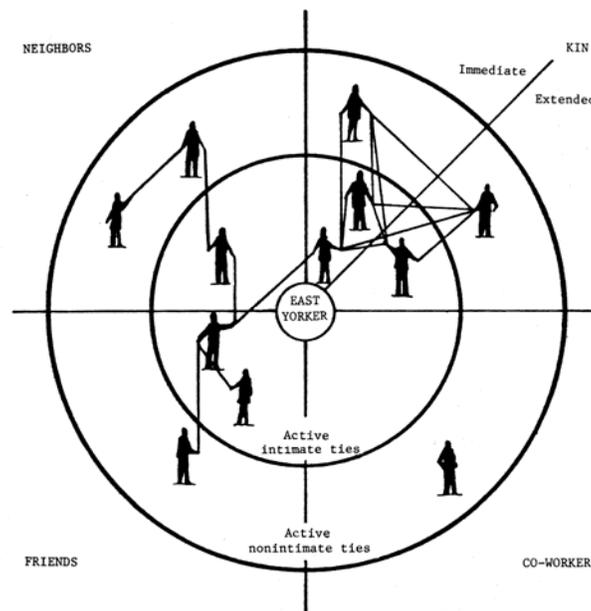


Figure 2. Typical personal network of an East Yorker. From Figure 2.3, Wellman and Berkowitz, 1988, p. 27.

Summing up, Wellman et al. note, “We have not found communities in the traditional sense. But we have found networks, and they seem to have satisfied most East Yorkers.” (Wellman et al., 1988, p. 176) In this particular metropolis, the significant ties of people did not conform to a small, geographically bounded community. As we shall see, this finding, generally thought to be true across most metropolitan areas, complicate attempts to identify strong and weak ties.

### *The strength of weak ties*

Social network theorist Granovetter (1973, 1974/1995) examined the process of getting a job. He asked how people find out about the jobs they take. He examined the tie between the jobseeker and the person who supplied the information that led to the job. (The jobseekers were

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all professional, technical, or managerial workers residing in a particular suburb of Boston.) His is also a study of personal networks rather than whole networks, and focused solely on personal ties that provide information leading to a job that is actually taken. As such, it is an example of activity-specific network analysis, the activity being jobseeking.

Some respondents used bureaucratic structures to answer their needs: job agencies and classified ads. But most of the 54 people interviewed relied on their informal networks. One of Granovetter's findings was that study subjects tended to hear of the jobs they took from people who were their weak ties. Looking more specifically, the informal social contacts that led to a job were skewed towards being weak ties rather than strong (Granovetter, 1973, p. 1371): 16.7% of the contacts the jobseeker sees twice a week or more often; 55.6% of the contacts he sees less than twice a week but more than once a year; and 27.8% of the contacts he sees once a year or less often. Granovetter proposed a model that built on the principle of transitivity described above: if A is connected to B and A is connected to C, then likely B is connected to C. Furthermore, Granovetter noted that if the two ties A-B and A-C were strong, then B had to be tied to C, either strongly or weakly. As a result, in his model all local bridges were necessarily weak ties. Figure 3 below illustrates this rule and makes the point that some bridges are more important or critical than others. In Figure 3, (b) shows a bridge, a weak tie between A and B, that is more important or critical than the A-B bridge in (a). Consider how much further C and D are from B without the bridge.

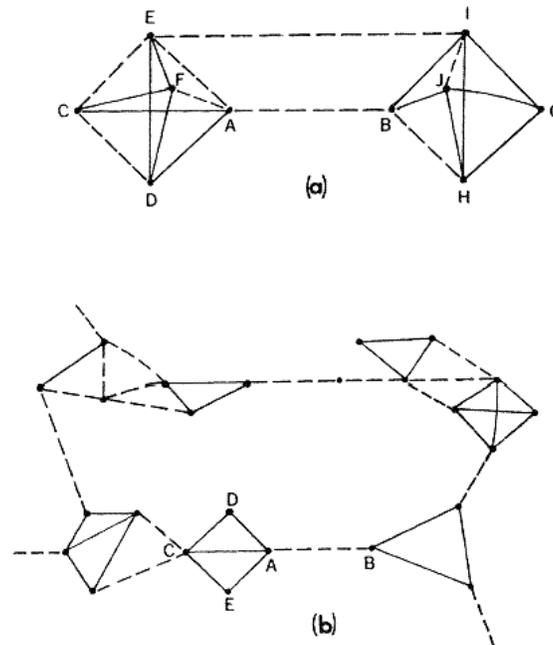


Figure 3. Examples of bridges between A and B. Strong ties are solid lines; weak ties are dotted lines. In both (a) and (b), A to B is a weak tie and a bridge, but in (b), A to B is of greater importance, as the alternative paths from A to B are much longer. From Figure 2, Granovetter, 1973, p. 1365.

Information about a job is new information, so Granovetter hypothesized that new information comes via weak ties, those that are local bridges in particular, and titled his 1973

paper, “The Strength of Weak Ties.” In other words, weak ties are strong (that is, effective) when it comes to job lead information. In addition, the information paths between the jobseeker and the hiring person were found to be short (Granovetter, p. 1372): 39.1% were just one tie long (the jobseeker heard about the job from the person hiring); 45.3% were two ties long (the jobseeker heard about the job from someone who was tied to the person hiring); and 3.1% were more than two ties long. As we discussed above regarding the attenuation of resource flow along ties, information leading to a job appears not to travel very far. This suggests that if a person depended only on a densely knit strong-tie network, that person would be insulated from information that would lead to a job.

Granovetter reasoned that job lead information from a person’s strong ties might be the same as his or her own job lead information, since a person communicates with strong ties more often, and thus a person might not use them. Or, he reasoned, people might avoid querying their strong ties about a job unless they had to, so as not to strain the relationship.

Referring to prior theory as did Wellman, Granovetter (1983) examined strong ties between people, believed to result in local cohesion, and weak ties, believed to result in alienation. (As he defined them beyond his original Massachusetts study, ties are weak or strong based on time spent together, emotional intensity, intimacy, and reciprocal services.) He theorized that strong ties by themselves generate fragmentation, as subgroups in a community become isolated from each other, and weak ties allow for community integration, connecting these subgroups. The event he studied, the sharing of information regarding job openings, is an example of the integration process.

*Where weak ties are not strong*

Many studies have cited Granovetter’s Strength of Weak Ties study; among them several that Granovetter later discussed as part of an ongoing dialogue within the field (Langlois, 1977; Ericksen & Yancey, 1980; Lin et al., 1981; Murray et al., 1981; Boomran, 1975; cited in Granovetter, 1983). A 2005 search on ISI Web of Science identified 1,668 such articles; a search of Proquest’s Digital Dissertations database, 111 abstracts mentioning Granovetter or weak ties.

But other research evidence did not completely support Granovetter’s theory. To cite just a few studies, various groups were found to tend to rely on strong rather than weak ties for job leads (Murray et al., 1981; Ericksen & Yancey, 1980; and Langlois, 1977; all cited in Granovetter, 1983; Brenes, 1983; Watanabe, 1987; Triegaardt, 1992; and Longjohn, 2001). These groups included newly minted PhDs, less well-educated Philadelphians, non-managerial Quebec government workers, clerical finance/insurance/real estate workers, Japanese workers, laid-off South African workers, and workers with mental retardation. These results were not explained away by the fact that studies defined a weak tie in different ways, for example, as someone with whom an actor is in less frequent contact, or as a non-kin, non-friend relationship.

Results testing the Strength of Weak Ties theory in domains other than that of job lead information are also mixed. Of the 60 dissertation abstracts (extracted from Proquest Digital Dissertations in 2005) that described their findings in testing the theory, 45% confirmed Granovetter, 37% found that both strong and weak ties play a role, and 17% found that strong ties were preferred or preferable in achieving goals. This is summarized in Table 1 below.

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	%	N
Confirm theory, weak ties are more effective than strong ties	45%	27
Reject theory; both strong and weak ties play a role	37%	22
Reject theory; strong ties are more effective than weak	17%	10
No clear results as to Strength of Weak Ties theory	2%	1
Total	100%	60

Table 1. Findings of 60 dissertation abstracts which report tests of Granovetter's Strength of Weak Ties theory (Williams 2005 p 32).

Certain findings are generally accepted. When it comes to personal contacts for job leads, higher-status or higher-skilled jobs tend to use weak ties while lower-status or lower-skilled jobs use strong ties. This could be out of urgency, as when a person is out of work and his or her family and friends help resolve the crisis. Or it could be because in lower-status jobs employers prefer to hire through an ethnic or other solidary group, because current workers can vouch for, train, and even discipline new hires. Generally, people use strong ties for emergencies, for emotional support, or when they do not have weak ties (Wasserman & Faust, 1994/1999).

Disadvantaged people are often found to be *encapsulated* without weak ties outside their community, ties that could provide new information or new resources. The focus of such people, the reasoning goes, is on basic needs and emergencies, which require maintenance of strong ties (Lin, 2001). Another explanation for the focus on strong ties is that society has a pyramidal structure, and towards the bottom it is not as easy to access people not like you—weak ties (Lin, 2001). As we have seen with Wellman, however, the personal nature of community makes it unclear whether we can characterize a geographic community by the personal networks of a sampling of its residents.

Context is a particular lesson here. Granovetter studied dyads without looking at the personal networks of the jobseekers. What might he have missed? An exchange between social network theorist Granovetter and ethnographer Herbert Gans (Gans 1974a, 1974b; Granovetter 1974) is instructive here. Granovetter (1973) had generalized from his jobseeker study and commented on Gans' (1962/1982) study of residents of Boston's West End, which was demolished in the late 50s without significant local mobilization. Granovetter argued that the lack of successful protest was the result of the absence of weak ties across the community. Gans replied that weak ties were necessary but not sufficient. He enumerated six contextual issues that he felt needed to be considered along with social network analysis: at the time there was no precedent for fighting urban renewal; residents did not get information in time; there was a lack of trust or informal contacts with politicians, and no single politician for area; there was no cultural tradition of protesting, and leader of protests was an oddball; settlement houses and Catholic church were pro-renewal; and The West End was not one single community, but several neighborhoods. While many of these factors can be restated in social network terms, it is important to see that even the whole network approach Granovetter takes in the debate with Gans, looking at cliques and the absence of ties between them, could be incomplete, let alone the dyad approach that he took in his own study.

At the same time, the discussion between the two scholars helped to replace an old paradigm (strong ties as key and weak ties as a drift into individual alienation) with a new

paradigm: weak ties make a society whole. Furthermore, later work rooted in social network theory found that weak ties strengthen a community *over time*, by their very persistence.

In sum: The social network literature examines social phenomena as activity across a network of actors with various ties between them. Granovetter (1973) asserted that weak ties were strong; in other words, as his data indicated, they were the dominant source of new information—information that led to a new job. Scholars have since explored the comparative roles of strong and weak ties. These roles are not completely understood, particularly in disadvantaged settings, and they are explored by the community informatics studies we will review. The fundamental question is how do our social networks help us initiate and sustain social activity. This applies to community informatics as well as to social life in general.

### Social capital

The literature of social capital is distinct from, but convergent with, social network theory. This section will review the work of James Coleman, Robert Putnam, and Nan Lin to demonstrate how this is so, and will arrive at a continuing question in the social capital literature concerning bonding and bridging social capital, a question taken up in the community informatics studies we review.

#### *Social capital to explain group behavior*

Coleman (1988) advanced social capital as a conceptual tool for resolving two conflicting theories on how microstructures in society generate macrostructures. One theory, typically sociological, held that the actions of people are governed by norms, rules and obligations; the other, usually from the point of view of economics, held that people are independent and self-interested and act to maximize their own utility. The first theory erased agency; the latter did not allow for social or collective organization. Social capital, Coleman felt, would put economic rationality into a social context.

Echoing social network theory, Coleman identified social capital as something inherent in the structure of relations between actors. His examples were of the trust that is possible within a stable set of people: among diamond merchants based on family and religious ties; among members of secret cells in the Korean student movement based on common hometown or school or church; and among merchants in an Egyptian market based on family ties and business longevity. He pointed up two features of social capital. The first was *multiplexity*, where two actors have multiple dimensions to their relationship, as in the case of two friends who attend the same church and whose children attend the same school. Closure was the second, where everyone in a set of people knows at least two other people in that set and therefore has recourse to sanctions against any other person in the group.

Looking for empirical evidence of family social capital, he analyzed data on school dropouts. The data revealed that children in smaller, *intact* (that is, two-parent) families, where the mother expects children to attend college, evidence a lower dropout rate. He explained this as the children benefiting from a larger measure of social capital from their parents, social capital that expresses itself as attention and support. Coleman also measured lower dropout rates among children at parochial schools, and ascribed this to increased social capital represented in their ties to parents, classmates, and teachers. The actors in this close-knit setting would be expected to have both multiplex ties and closure.

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Coleman's descriptions are generally of social capital via strong ties, and the two features he describes map to strong ties: multiplexing has its analogue in the social network literature where Wellman discusses multistranded ties, and the concept of closure echoes the concept of densely knit social networks. In conclusion, Coleman warns that family and community ties seem to be weakening, so that in the future we will rely more on formal organizations than on informal networks, echoing community lost sentiments of social network theorists and presaging the work of Putnam.

### *Social capital to maintain the fabric of civil society*

Putnam (1995, 2000) examines social capital via a focus on the relationship between democracy and civil society. As did Coleman, Putnam formulates a definition of social capital that relies on social networks: "connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them." (2000, p. 19) Putnam argues that social capital is declining in the U.S., on the basis of three indicators for which he reports a great deal of survey data: fewer people are members or active in civic associations and organizations; families spend less time together; and neighborliness and socializing with neighbors is down. He covers both bonding and bridging social capital and makes an important point: "In short, bonding and bridging are not 'either-or' categories into which social networks can be neatly divided, but 'more or less' dimensions along which we can compare different forms of social capital." (2000, p. 23)

This helps to explain Gans' urban villagers: people in strong-tie networks based in microneighborhoods composed of a few blocks each, and very few weak or bridging ties holding the larger West End together. It also helps us reconcile the varying definitions of weak ties and strong ties. The two types of ties are relative, not absolute, and depend on scale. For Wellman and many others, strong ties were kin and friends, weak ties were acquaintances and co-workers. The community he looked for and did not find was East York; what he found were personal networks ranging for the most part across metropolitan Toronto, on the basis of the phone, transportation, and work and home mobility. For Granovetter, strong ties were "see twice a week or more" and weak were "see once a year or less."

### *Social capital to obtain resources*

Putnam's book (2000) was very much taken up by the media, policymakers, and scholars, some of whom took issue with it. Lin (2001) catalogs those who have refuted Putnam for his method. He himself takes a different approach, both theoretical and empirical: first laying out a theory of social capital which is more precise than Putnam's usage, and then concluding with a look at new information technologies, more specifically, cybernetworks, as an explosion of social capital.

Lin (2001) discusses social capital against a background: capital (Marx 1887/1938), human capital (Schultz, 1961; Becker, 1964), and cultural capital (Bourdieu & Passeron, 1970/1990). He defines social capital so as to be measurable, not confounded with its effects, and explicitly based on social network theory: "resources embedded in social networks that can be mobilized when an actor wishes to increase the likelihood of success in a purposive action." (Lin, p. 24) He identifies four controversies within the social capital literature and gives his answers. First, is social capital a collective or an individual asset? It can be seen as both, he says, but you cannot mix it up with trust or norms, which are collective assets only. Thus Lin comments: "Divorced from its roots in individual interaction and networking, social capital

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becomes just another trendy term to employ or deploy in the broad context of improving or building social integration and solidarity.” (Lin, p. 26)

Second, Lin asks if social capital arises from closure or from open networks. He credits Granovetter (1973) with establishing that weak ties bring resources too, and summarizes what is generally accepted, though not always proven: dense networks, or bonding ties, help preserve or maintain resources and are activated by expressive action, while bridging ties help with searching for and obtaining resources and are activated by instrumental ties. Third, does social capital include all social structural resources that generate returns? Not according to Lin, or the researcher risks definitional fuzziness where the cause and the effect are the same. Fourth, is social capital measurable? Yes, and Lin briefly discusses two classes of measuring instruments.

Lin lays out a seven-part theory of social capital with three assumptions upon which this theory is based. First, the assumptions (Lin, 2001, pp. 56–58):

Society is hierarchical and pyramidal with respect to resources: there is a top and a bottom, and the top is smaller than the bottom. Different resources show identical or similar pyramids.

Interactions are more likely at a similar or identical level in the pyramid.

Two driving forces are the maintaining of resources and the gaining of better resources. For the former, expressive action is the means and the end, it is stabilizing, and it tends to take place between homophilous ties (that is, ties between two people who are alike in some way). For the latter, instrumental action is the means (and not the end), and rather than stabilizing it aims at change, and tends to take place between heterophilous ties.

Lin’s seven propositions follow (Lin, pp. 59–73):

1. Social capital pays a return—improves an actor’s outcomes—and is therefore worth investing. Accessing social capital is a function of one’s position in the hierarchy, the nature of the tie, and the location in a network.
2. Strength of position: higher in the hierarchy means better social capital.
3. Strength of strong tie: strong ties serve better for expressive action.
4. Strength of weak tie: weak ties serve better for instrumental action.
5. Strength of location: closer to a bridge is better for instrumental action.
6. Position, tie and location all interact; thus the resource differential across a bridge influences the strength of the location near a bridge.
7. Structural contingency: at the top of a pyramid, there is not much further to go, so instrumental action is not as worthwhile. At the bottom of a pyramid, there are so many people and so many homophilous ties that instrumental action is not as possible. The middle of the pyramid is where social capital can best serve for instrumental action.

With this as his operating framework, Lin then uses the data on growing Internet use worldwide, together with a case study of the Falung Gong movement, to argue, “There is clear evidence that social capital has been on the ascent in the past decade: in the form of networks in cyberspace.” (2001, p. 211) He further points out that those not online are at an ever-greater disadvantage, cut off from this explosion in social networks and social capital.

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The concepts of bonding and bridging social capital refer to a community's capacity for accessing resources within itself (bonding) or outside itself (bridging). Under-resourced communities are said to depend on bridging social capital (Putnam, 2000) similar to strong and weak ties (Wellman & Berkowitz, 1988); yet it has also been asserted that social networks entirely within these communities muster valuable resources and demonstrate a level of self-sufficiency. This is particularly true for social change, as studies of the U.S. civil rights movement have demonstrated (Morris, 1984). Others have theorized that such communities mobilize both bonding and bridging social capital (Orr, 1999). Again, we arrive at a basic question: Where, when, and how does a community rely on bonding social capital and, similarly, on bridging social capital?

### Community informatics

As previously stated, community informatics emerged as a field of research in search of theory. In our analysis above, it is clear that rich theoretical content is available in the related theoretical frameworks of social networks and social capital. How do the relationships between people serve as the basis of social life? How do our social relationships differ in importance? These theoretical questions are central to understanding technology in communities. Specifically, the issue can be broken down as how a community starts to use information technology for its purposes, and how it sustains that use. What social networks are important? What kind of social capital?

In the following section we will describe the nature and origins of community informatics and then analyze the research literature that is beginning to coalesce around the theoretical foci of social networks and social capital. The purpose of this section is to elucidate what scholars of community informatics have suggested about the relationship between social capital/social networks and community technology, and to point up an opportunity for further inquiry, an opportunity that the study seizes upon. The section will first define community informatics, and then discuss the roots of community informatics, the main ideas, and those studies in community informatics that use the concepts of social capital and social networks.

#### *What is community informatics?*

Community informatics is a field both of study and of practice, although the concern here is primarily with the former. As a new field, it is variously defined, but Loader has described it as navigating the interaction between *transformation* as expressed in information technology or IT, and *continuity* as expressed in a local, historical community (Loader et al., 2000; cited in Keeble & Loader 2001, p. 4). This is a specification or subset of the field of social informatics: "the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts." (Kling, 1999) The case study is perhaps the predominant research method to date, with scholars often engaged alongside practitioners as designers of community technology.

Where social informatics historically has most often concerned itself with organizational settings, particularly business and government, community informatics looks at a third terrain of social activity, the community. The concept of community and the tensions within that concept when contextualized in the nascent information society form the core ideas of community informatics. The challenge of defining and explaining community is not a new one. With the last major wave of U.S. migration from country to city, the fate of community within the metropolis occupied a generation of scholars, who themselves referenced the scholarship of those who had

earlier grappled with the migration to cities during Europe's industrialization (e.g., Tönnies, 1887/1957). Community is variously defined in the social sciences and has been examined in many of its guises in community informatics literature. It may refer to a population living within certain geographic boundaries (local community). This definition is bolstered by the fact that planning and the flow of funds are channeled according to those boundaries and political battles are often fought within these jurisdictions. Especially early on, various cities implemented community IT projects (for a comparison of four cities, see Guthrie & Dutton, 1992).

But there are communities within these local communities, as for instance the communities of interest that contended—the homeless and their allies, and local business and real estate interests—within Santa Monica's Public Electronic Network (Rogers, Collins-Jarvis, & Schmitz, 1994). Furthermore, there are communities that do not share a geographic locale, most dramatically the diasporic communities that have taken to the Internet to maintain close ties with people far away, for example Trinidadians (Miller & Slater, 2000). From these examples it is evident that community may refer to people with a shared identity. It may refer to people with a shared interest or activity (communities of interest, communities of practice), as for instance the work of Bishop, Mehra, and Smith (2001) on a community IT tool for African American women working on health issues. It may also refer to a gathering of people in cyberspace according to shared geography, identity, or interest; Rheingold's two books on computer networks (1993) and on cell phone networks (2002), respectively, come to mind. Wellman (2002) has more recently advanced the concept of networked individualism, whereby every individual and his or her ties represent a distinct personal community, more or less place based. Benjamin (2001) used a recursive definition of community—"people living in a geospatial area who define themselves as part of a community"—in order to analyze why some telecenters succeeded and others failed to attract local involvement. This definition has a history in ethnography and acknowledges that communities are quite often self-identified or socially identified.

There are tensions and overlaps between these various communities. The field of community informatics, by looking at the interaction between transformation and continuity, between digital technologies and community, is building up a picture of what community looks like and how it is evolving as we move from the industrial to the information age. Below we will review those community informatics studies that make use of the concepts of social capital and social network and present one way to make sense of the apparently disparate case studies that are all grappling with the same interaction.

It is worth mentioning that, for scholars in community informatics, the scaffolding of the field features two particular processes that have contributed to the drawing together of English-speaking scholars via conferences, proceedings volumes and at least one journal. The first of these two processes is the series of seven Dimensions in Advanced Computing (DIAC) conferences sponsored by Computer Programmers (later Professionals) for Social Responsibility since 1987; this has generated both proceedings volumes and edited books (most recently, Day & Schuler, 2003; Schuler & Day, 2004; and Schuler, in press). The organizer, Douglas Schuler, is a cofounder of Seattle Community Network, has launched and operates an undergraduate program in community informatics, and authored *New Community Networks: Wired for Change* (1996). The second process has been anchored in Teesside, England, where Brian Loader and others have generated a flow of authored or edited work (Loader, 1997, 1998; Loader & Hague, 1999; Loader & Thomas, 2000; Keeble & Loader, 2001; Loader & Dutton, 2002; Loader, van de Donk,

Nixon, & Rucht, 2003; Loader & Keeble, 2004), at least one conference, and the quarterly journal *Information, Communication and Society* (since 1998), all while guiding several community IT projects.

Other contributions towards building the field include (1) the work of Gurstein (2000) defining community informatics and bringing particular attention to work in Australia and Canada, (2) conferences organized by him and others from England, Australia, and the U.S. via the Community Informatics Research Network, and (3) the somewhat more broad but still highly useful conferences of the Association for Internet Research (annual since 2000) and the journals *First Monday* (launched 1996), *The Information Society* (1981), and *New Media and Society* (1999), and most recently the *Journal of Community Informatics* (2004).

### *The roots of community informatics*

It is possible to identify four important social trends that gave rise to community informatics, and these have their reflection in the field's still-coalescing literature. These four trends are listed below, and they each have generated scholarly work that forms a foundation for community informatics, as we shall see: change in social structure: the network society changing, and even threatening, local communities; change in culture: the hacker ethic; changes in libraries: the community information systems; and change in social inequality: the digital divide.

The network society is changing and even threatening local communities. Today we have a society characterized by networks rather than organizations, flexible production with a flexible workforce, with an economy that is globally coordinated in real (or chosen, as with e-mail) time. A new space has been identified that contrasts with the space of place (geographic communities): the space of flows, that is, the sum total of all the communications and transportations flows that link the global, mobile network of human networks (Castells, 1996). The world's economies (east and west) took up digital technologies even as they experienced the economic crises of the 1960s and 70s; what has resulted is spaces of place that are threatened, because they are mostly bypassed, by the space of flows. In the industrialized countries, one can think of the U.S. Rust Belt or vast stretches of the North of England as thus threatened. Other spaces of place, such as Silicon Valley, California, have certainly been transformed, and yet even there the space of flows has left toxic dumps with which the space of place has to cope. As has been mentioned, local governments have responded with digital initiatives of their own. For example, in the early 1990s Santa Monica, California, made available to its residents free online discussion lists, accessible in public libraries or from home, and access to city officials (Rogers et al., 1994). Some years later Lagrange, Georgia, offered its entire population free cable Internet (Youtie, Shapira, and Laudeman, 2002).

An early reflection in academia of this space of place-space of flows, or network-communities, conflict was a 1996 colloquium that arose from a dialogue between two mutually exclusive groups in urban planning at MIT, one focused on opportunities for new technologies and the other on low-income communities. A record of this colloquium, which opened with a presentation by Manuel Castells, was published as *High Technology and Low-Income Communities* (Schön, Sanyal, & Mitchell, 1999). It discusses, but does not name, community informatics.

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The hacker ethic is what Himanen (2001) calls “the spirit of the information age.”<sup>1</sup> He has defined the hacker ethic as the practice of building computers and writing code for the fun of it, for the creativity of it, and for the community-building. This ethic expressed itself in the origins of the personal computer in the milieu of the Homebrew Computer Club and in the production of Linux and other such software. It also expressed itself in projects where hackers joined up with others to produce such tools as the volunteer projects that built on PLATO, where by 1972 hackers and teachers were writing online courses for all levels of students (Woolley, 1994); Berkeley Community Memory, the networked public terminals installed in 1973 to provide an online bulletin board for all passersby (Felsenstein & Aboba, 1994); community technology centers (CTCs) such as *Playing to Win*, opened in 1983 by a math teacher in a Harlem housing project (Stone, 1996); and freenets or community networks (CNs) such as the Cleveland Free-net, which began life in 1984 as St. Silicon’s Hospital and Information Dispensary, an online communications tool for doctors and patients (Bluming, n.d.). CNs and CTCs each developed into international movements, with associations, publications, and annual conferences for practitioners. Community technology projects emerged out of the grassroots—as in inner-city Toledo, Ohio (Alkalimat & Williams, 2001) and inner-city Wilmington, North Carolina (Mele, 1999)—and blossomed in both virtual and actual space.

Community information systems in public libraries came into being in the 1970s, when urban communities in crisis needed places for local information concerning where to find food, health care, housing, civil rights, legal aid assistance, and other local services that were available. In response, librarians began to build community information files as an appropriate extension of their local holdings. (Durrance, 1984) These files were collections of flyers, booklets, and directories to help people in need. When card catalogues were converted into online databases, in many cases the community information was as well. When these online databases became Web-accessible, in many cases these community information files followed suit, especially where links had been built between CNs and local libraries. In some cases libraries took over the operations of CNs, extending their activity from collecting information for the everyday needs of individuals and communities to facilitating the creation of such information (Durrance & Pettigrew, 2002; Durrance, Souden, Walker & Fisher 2005). A library school professor at the University of Michigan helped shepherd the Association for Community Networking into existence; she organized her students into newsletter editors and eventually archivists for the movement, establishing the Community Connector (Durrance, 1994), an online resource for this movement. Today library or information schools are important sites in the US for community informatics teaching, research, and service.

The fourth and final social trend that created a foundation for community informatics was the discourse and the activity around the concept of the digital divide. As has been said, this concept emerged as a gap between those who access and use computers and the internet and those who do not. In the United States, the Department of Commerce was an early catalyst for both research and policy on this issue, launching a series of survey reports on the access and use by individuals of computers and later the Internet, and annual rounds of grantmaking (TIAAP,

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<sup>1</sup> The open-source community model is now widely discussed and has been compared or applied to other social phenomena: cultural creativity (Lessig, 2004), curriculum sharing (Ishii & Lutterbeck, 2001), scientific journal publishing (Public Library of Science, 2003), the practice of science itself, and even the rise of Protestantism (Willinsky, 2005), to name just a few.

later the Technology Opportunities Program, or TOP) to communities and local organizations to support community IT projects. This federal initiative was rooted in the economic imperative to develop a market for computers and for e-business and to develop a skilled workforce via education and public provision of IT. Experiments such as TOP (Williams, 2006) were echoed by private and other public funders, including technology companies and even the National Science Foundation, which helped Playing to Win launch the now-nationwide Community Technology Centers Network. One could certainly say that the dot-com technology bubble fueled the digital divide discourse in the U.S., with corporations taking on local and national projects. All these influences created a big tent for study and practice regarding the phenomenon of stratification in information technology access and use.

These four trends continue to influence and interweave with each other, and are reflected in a literature that emanates from many disciplines. They express the shifting definitions of community in community informatics and are examples of how transformation and continuity express themselves in these variously defined communities.

### Community informatics and social capital/social network theory

Social capital and social networks are the two theories that we are using to sift through community informatics scholarship and explore the question of community as it intersects with technology. O'Neil (2002) reviewed more than 30 studies of community technology and social capital emerged as one of the top three conceptual frameworks for evaluating such projects. Our search of the literature identified a group of scholarly studies, sometimes reported in more than one journal article, that make use the concepts of either social networks or social capital. A number of them also use the Strength of Weak Ties theory.

This section will summarize these studies and what they suggest about the relationship between social networks (or social capital) and community technology, what they imply for future research. Each of the studies looks at the relationship between technology and community, conceptualizing community either in terms of social networks or social capital, sometimes using the language of both. The analysis is strong on description and narrative, but has not been thoroughly synthesized by equally strong work on general concepts and theory. Our objective is to construct a framework that will help explain theoretically this diverse empirical literature.

Each study defines community technology practically, empirically, as the particular technology project under study. These include:

1. Virtual communities, often called community networks (CNs), which are facilities in cyberspace using a website or other tools people can use once they get online.
2. Telecenters, also called community technology centers (CTCs), which are physical facilities equipped and staffed (often with volunteers) where people can use and learn computers and the internet, usually for free.
3. Cybercafés, much like telecenters, but more often for profit, charging fees, and perhaps providing some food with its PCs.
4. High-speed connections in local homes and a local community listserv.

The most elaborate instance of community technology in this review of studies is Blacksburg Electronic Village, which supported electronic discussion lists, gave grants for people to develop Web sites, provided server space, tech support, and high-speed public Internet access points.

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Williams (2005) studied IT use by community groups, where the technology use developed organically from group goals rather than arriving in the community as one project. But in general, all these studies are either of virtual tools (CNs), physical tools (telecenters/CTCs/cybercafés), or some combination of both delivered to the community. Hence it is possible to call them community technology.

It must be said that our review of the studies of technology in local communities and social capital/social networks relies on a particular conceptualization of the relationship between technology and society. Although in everyday language we are accustomed to speaking of the social impact of technology, technology does not itself cause social change. Rather, any particular technology—itself a social product—generates social affordances (Gibson, 1977; Norman, 1988). These affordances allow for certain possibilities and not others. Social forces then interact with the technology, often combining it with old technologies still in place. The results may reflect what designers intended, or what was neither expected nor intended (Merton, 1976; Tenner, 1996). In a social setting of relative stability and consensus, a technology may be adopted as intended; in a more typical social setting, characterized by social differences and conflicts that may themselves overlap, the results may be more surprising (Kling, 1980). Therefore, society shapes technology; technology also shapes society (MacKenzie & Wajcman, 1985; Bijker, Hughes, & Pinch, 1987).

The cases in these studies either focus on community technology shaping social networks/social capital or social networks/social capital shaping community technology, or a combination of the two processes. In the following pages, we will review them according to this categorization, summarize their findings with regard to strong and weak ties, and draw a framework by taking all the studies together. For clarity, the studies are listed at the start of each of the three sections in which they are discussed. (A table detailing each study is available from the first author.)

### *Does community technology shape social networks/social capital?*

The following studies examine the effect of community technology on either social networks or social capital: Kavanaugh, 1999; Kavanaugh & Patterson, 2001; Blanchard & Horan, 2000; Hampton & Wellman, 2000; Hampton, 2003; Hampton & Wellman, 2003; Tonn, Zambrano, & Moore, 2001; Ferlander & Timms, 2001; Ferlander, 2002; Ferlander, 2003; Kvasny, 2002; Meredyth, Hopkins, Ewing, & Thomas, 2002; Clark, 2003; Pinkett, 2003; and Pinkett & O'Bryant, 2003. All but two of the studies find that community technology does indeed contribute to social capital/social networks. Of those that explore weak ties and strong ties, only strong ties are augmented in one instance, in an Australian housing estate (what the U.S. calls a public housing project); only weak ties are augmented in two instances, in a Denver youth-serving telecenter and at the end of the Netville project in a Toronto suburb; and both kinds of ties are augmented in three instances, in a Stockholm cybercafé, at an earlier stage in the Netville project, and in Blacksburg, Virginia (where weak were augmented more than strong). An additional complexity is that each study defines strong and weak ties somewhat differently. These definitions are detailed below and in Table 2, also below.

In large part these are case studies, together representing fewer than 50 instances of community technology. Judging from Williams (2003), which used an empirical count in one city (Williams & Alkalimat, 2004) to estimate a total of 85,000 to 114,000 U.S. public

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computing sites, these 25 represent a tiny fraction of all the community technology projects in the world. Nevertheless, what exactly did they find?

Kavanaugh (1999; also in Kavanaugh & Patterson, 1998) asked, What is the relationship between computer networks, social networks, and civic engagement? Working in a small affluent U.S. city, Kavanaugh interviewed 10 people, each of whom was a member of a social network that had an online presence (Kavanaugh, p. 6) by means of the Blacksburg Electronic Village (BEV), and found that the information technology, especially e-mail and listservs, reinforced and extended social networks. Using the Internet to garner resources suggested that it was weak ties social networks, but data from seniors demonstrated that social support, within-group strong ties, were also reinforced and extended by technology. A related study (Kavanaugh & Patterson, 2001) asked if a community computer network was a way to build social capital. Considering again the effect of the BEV in the form of listservs, grants for Web development, server space, tech support, and high-speed public Internet access points, they carried out two surveys of Blacksburg residents (N=156 and N=320). They were not able to measure an increase in community involvement and attachment over the period that BEV had grown, but they did see an increase in community communication. They found that length of use of the Internet was directly related to (1) use of the Internet for social capital and (2) a sense of increased community involvement.

Blanchard and Horan (2000) surveyed 342 people in a mid-sized California city that was about to get a *virtual community* (i.e., a CN). Following Putnam's thesis (2000), they wanted to know if virtual communities could "compensate for a decrease in social capital due to a decreased participation in face-to-face communities." They also asked what topics would attract people's virtual participation. They concluded that people would indeed make use of a new virtual space and interact with their neighbors, building social capital by using child education resources, community bulletin boards, communicating with family and friends, and participating in government or politics.

Hampton and Wellman (2000) asked how living in a wired neighborhood affects interpersonal relations. They carried out a two-year case study of a middle-income suburban development in Toronto (Netville) where close to half the residents were provided with a high-speed Internet connection and a residents' listserv. They found that wired households evidenced more social ties of every type: strong, weak, instrumental, emotional, social, and affiliative. Their operationalization of strong and weak included three categories: host someone at your home or vice versa (strong); talk with regularly (weak); or the *knowing tie*, recognize someone by name. Based on a survey of 65 wired and unwired households, Hampton (2003) analyzed the end stage of the Netville project when the community had begun to fight the development project over house repairs and over withdrawing the high-speed Internet. He suggested that information technology only contributed to weak ties, defined as above. Analysis of participant observation and interview data (Hampton & Wellman, 2003) finds that a household's being wired was associated with and a causal factor in more weak ties.

Tonn et al. (2001) examined 40 CN Web sites based in a variety of communities and countries to see what are typical and cutting-edge features of CNs and how might they foster an increase in social capital. They looked for nine features they identified as fostering social capital as defined by Putnam: helping people be better citizens; fostering direct democracy; helping students interact with the larger community; letting citizens comment on proposed new developments; fostering barter and other alternative economics; building an "organic online

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community history”; bringing citizens together for mentoring; and paying special attention to seniors and low-income communities. Of the 40 CNs, eight appeared to have one or more social-capital-building features.

Ferlander (2002, p. 1) asked, “To what extent can the use of an Internet café increase social capital in a local community?” She found that community technology, namely a cybercafé in a disadvantaged and multiethnic Stockholm suburb, strengthens both weak ties (defined as ties to people emotionally distant) and strong ties (to people who are emotionally close). Her studies investigated the effect of use of two distinct community technology projects (an Internet café and a CN) on social capital in a local community. In another small survey, residents expected the CN to generate social capital (Ferlander & Timms, 2001), but it did not attract enough users to carry on, perhaps due to a requirement that all posts be in Swedish, and what might have followed from that, a sense of surveillance by system operators.

Kvasny (2002) studied a CTC run by the city of Atlanta to determine the relationship between participating in a technology-rich environment and one’s life chances and examined the process by which technology reproduced social stratification. She defined social capital, after Bourdieu, as social networks that improve one’s social standing, and found that community technology reproduced social stratification rather than fostering people’s social development. Inner-city Atlantans were given what she called “light training” (p. 200) which would not help them move forward in career or in life. The CTC in fact acculturated them to a new setting for relative powerlessness and exclusion. She proposes that a different approach to community technology could instead boost participants’ social capital.

A study by Meredyth et al. (2002) asks, “What is community?” in a heavily immigrant, impoverished, multilingual housing estate in Australia. These researchers found that community technology strengthens strong ties rather than weak ties. Their technology project was comprised of recycled home computers, subsidized Internet access, classes, a computer lab, and online community information. They define bonding social capital, or strong ties, as the links within distinct language or country-of-origin networks connecting residents to family and friends in a home country, and bridging capital, or weak ties, as local communication and exchange between residents. They found that the estate consisted of multiple bonding social capital networks with almost no bridging social capital or weak ties, and that the computer lab and the training (the rest of the project had not yet been rolled out), was used only for e-mail and exchange with the diasporic communities—and hence augmented only the bonding social capital.

Not only does this echo Gans’ urban villagers, who were also recent immigrants, the study begins to bridge the two models we are discussing (social capital/social networks as they influence IT and IT as it influences social capital/social networks). Meredyth et al examine the social capital that preceded the community technology as well as that resulting from it. So, in a community where bonding ties predominate, community technology augments and extends those, but not bridging ties. The obverse is true for the other studies in this subset; when they examine people whose ties are mostly weak, community technology augments and extends those ties rather than the strong ties. Haythornthwaite and Wellman’s finding (2002) may hold here: technology augments and extends what already exists, rather than making any dramatic change. Yet augmenting and extending what ties exist is often quite meaningful in and of itself.

In an ethnography of a youth-oriented CTC in Denver, Clark (2003) asks how digital divide policy is actually practiced and finds broad gaps between partners and between policy and

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practice. She also makes use of Granovetter and of Oldenberg's concept of third places (1997) in concluding that young people's gaming and other typical teen online activities builds their weak tie networks, ties to a "wider circle of resources and opportunities than...through their family or peer contacts." (Clark, p. 109) Using Bourdieu, she concludes that these networks enable them to "do such things as find employment, locate housing, and otherwise function in society." (p. 109)

Pinkett (2003) and Pinkett and O'Bryant (2003) ask, "How can community social capital be increased and community cultural capital be activated through community technology?" They themselves install new home computers and high-speed Internet, and implement computer classes and community-building software in a housing development created by privatizing (selling to a tenants group) a public housing development. They also survey 58 heads of households living in the development. Residents were seen to expand their local ties and their access to information. Social networks were seen to become more dense, and ties stronger, for those engaged in the community technology project compare to those not engaged. These ties was measured as visiting other residents at home, as well as phoning, e-mailing, and recognizing them by name.

*Do social networks/social capital shape community technology?*

Importantly, all but two of the studies report that social capital and/or social networks do indeed augment or otherwise influence community technology. Turning the model in the first set of studies around, reversing the direction of influence, the following studies examined the effect of social networks or social capital on community technology: Liff and Steward, 2001a, 2001b; Borgida et al., 2002; Kvasny and Keil, 2002; and Williams, 2005. Most of the previous set of studies considered community deficits in social capital, following Putnam, and asked whether community technology might reverse these deficits and improve the situation. The studies that consider preexisting social networks and social capital in the community, before the arrival of the technology project, take a point of view close to the asset-based community development model elaborated by Kretzmann and McKnight (1993), in which all communities have assets that can be mobilized to improve conditions. Taken together, they report that social capital is a powerful influence on technology. In fact, except for Williams (2005) they provide more evidence of projects suffering because of a lack of attention to the positive influence of social capital than of projects that mobilize social capital and see the benefits. Their research issues a call for better policy to help such projects take hold and succeed.

Liff and Steward (2001a, 2001b) ask how policy prescriptions guiding the establishment of telecenters stack up against practice. Analyzing a rural UK youth-serving telecenter, they find that rather than the prescribed strong-tie reliance, it is weak ties in a community that support the technology and help it serve the community. Both types of social capital bolster the technology project; weak ties help more than strong ties. The authors construct a network diagram of the telecenter and its board, staff, partners, and clients in order to illustrate this. In their view, weak ties are deemphasized in policy directives and often overlooked in practice, to the detriment of the community technology project. By strong ties the authors mean more intimate, multistranded, mutual ties based in kinship and the traditional community, and by weak ties they mean "boundary spanners," people who are in two or more organizations (Liff & Steward, 2001b, p. 322).

Borgida et al. (2002) ask what role social capital plays in addressing the digital divide. In a comparative case study of two rural Minnesota towns, each of which develop community

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networks that include internet service provision, they find that the town with more social capital evidences a more positive attitude towards the Internet and eliminates income-based disparities in computer and Internet use. This town develops its technology collaboratively with support from a local foundation and the Department of Commerce. The town with less social capital, which pursues networking via an entrepreneurial, competitive approach, evidences a more negative attitude towards the Internet and income-based disparities in computer and Internet use persist, and are even justified by locals. The two community networks in this town are set up by the municipal utility and a competing businessman.

Kvasny and Keil (2002) investigate responses by two municipalities to local digital divide initiatives and ask why they were less successful than expected. One is the city of Atlanta, with its string of city-operated telecenters, and the other is LaGrange, Georgia, which offered free cable Internet access, set-top boxes for Web access via television, and e-mail accounts to all residents. In both cases, disregard for existing social networks and social capital kept the projects from greater success. In Atlanta, existing social networks brought people into the centers, but their social capital was disregarded. In LaGrange, the absence of positive word-of-mouth across poor neighborhoods left people who were not familiar with the Internet uninterested and suspicious.

Williams (2005) investigates 31 grassroots community groups in disadvantaged areas of Manchester, England, using information technology and the social ties that support their IT use. She asks: “How and to what purpose do groups not expected to use IT—because they are formed from “digitally divided” populations—in fact do so? Who or what helps them use it?” The study incorporates key concepts from social capital and social network theory, with particular reference to the scholarship of Granovetter, Lin, Putnam, and Wellman cited above. She examines strong and weak ties and bridging and bonding social capital by focusing on where community groups sought and obtained help with IT. In this study, having more ties providing IT help—and more strong ties, more bonding social capital—was associated with more extensive ICT use by the community groups. Based on 25 measures of IT use, the groups fell into three categories: downloading (using computers and the Internet, particularly e-mail), uploading (maintaining a group Web presence), and cyberorganizing (helping others to become uploaders or downloaders), in order of breadth of IT use. These three categories align with group purpose (tenant groups, cultural groups, and social support groups), suggesting that community groups use IT in close alignment with group purpose, much as Orlikowski (1993) suggested for business. The 31 groups reached across real or perceived digital divides in accessing help with IT; the ties utilized were likely to be younger, white, more male, and more in the workforce. Williams uses both quantitative (statistical tests on closed-end responses) and qualitative (narratives extracted from interviews) approaches, and comments that social disadvantage is often oversimplified, not taking into account the phenomenon she uncovers: groups that reach across ethnicity, class, gender, and generations for skilled help, yet stay close to their strong-tie, bonding-social-capital networks, relying largely on people in their own communities. IT projects are advised to take into account the relatively invisible but active networks within disadvantaged communities.

These scholars’ research establishes that existing social capital and social networks are an influence on a local community’s use of information technology.

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*Do social networks/social capital and community technology shape each other?*

Finally, two studies by Kavanaugh, Reese, Carroll, and Rosson (2003) and Alkalimat and Williams (2001) examine both processes, social networks/social capital shaping technology, and technology shaping social networks/social capital. This research explores the model as below:

social capital/social networks → technology → social capital/social networks

where the arrows signify the process of shaping, or influence.

With regard to the first arrow, in the model, Kavanaugh, Reese, Carroll, and Rosson (2003) find that the people with more weak ties to start with increase their social capital the most. With regard to the second arrow, they find that community technology does, indeed, build social capital in the local community. In other words, the social networks/social capital that can take the most advantage of community technology is the weak tie, bridging type of social capital. Examining again the Blacksburg Electronic Village, Kavanaugh et al ask how strength of ties and Internet use influence what they call “community involvement and collective efficacy” (Kavanaugh et al., p. 265)—a concept close to local social capital. The Internet use that the study examines is specifically group use: organizational e-mail, listservs, online bulletin boards and Web sites. People with weak ties (members of more than one organization) boost their local community involvement and connections more than people without weak ties (members of just one organization), and they also use the Internet more for political purposes. Kavanaugh et al define strong ties as thick trust, bonding social capital, and intensive daily contact for support and mutuality within homogeneous and exclusive communities. They define weak ties as thin trust, bridging social capital, less personal, for instrumental purposes, information sharing, and linking homogeneous groups to integrate them into one social environment.

Alkalimat and Williams (2001) start out analyzing the social capital as an input into a telecenter in Toledo, Ohio (USA), but their findings lead them to an extended model. They define bonding social capital as support from members of the church that founded the telecenter, and from neighborhood residents, and bridging capital as support from local university staff and students and from local government agencies.

Bonding social capital is the fundamental resource that makes something belong to a community. Without this form of community wealth and legitimacy the organization is an artificial construct. Bridging social capital is essential in acquiring temporary resources and external support. Whenever bridging social capital is dominant the organization is in crisis and in danger of dying or being transformed as an extension of external interests rather than the interest of the original community and its bonding social capital.

They also find that sustainability is a function of whether the center produces its own bonding social capital that knits the local community more tightly to the telecenter itself.

*Weak ties and strong ties*

Studies that look at strong and weak ties, or bonding and bridging capital capital, are looking more closely at the shape and texture of the local community that is using IT. Here the definitions in Ferlander (2003) and Meredyth et al. (2002) exemplify a challenge in synthesizing the work on community technology and social capital. For Ferlander, bridging ties are what she calls “global,” (Ferlander, p. 83) to people outside the local community, while bonding ties are to people within the local community. For Meredyth et al. it is the opposite: bridging ties are to

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people inside the local community but not of one's own language group or nationality, and bonding ties are to one's own language group or nationality, either local or global. The two studies develop their diametrically opposed formulations despite the fact that both look at multiethnic or multinational urban communities: just outside Stockholm with "28% foreign citizens born abroad or in Sweden or foreign-born Swedish citizens," (Ferlander, p. 8) and Atherton Gardens housing estate with 64% of tenants "born in Asia, predominantly Vietnam ...[and] only 14% of residents born in Australia" (Meredyth et al.).

In fact, as discussed earlier, the studies define strong and weak ties rather differently. (See table 2.) Hampton and Wellman operationalize the two (strong and weak ties) as a continuum, from strong to weak to knowing tie. In the sense of a "great good place," (Oldenburg, 1997) Clark's study of a telecenter in Denver describes weak ties as young people at the facility meeting people they would not otherwise. Alkalimat and Williams (2001) define bonding social capital as resulting from connections to the very immediate local neighborhood of the telecenter; bridging social capital as resulting from government and university connections. Williams (2005) uses several definitions culled from other empirical work. Table 2 below details how strong and weak ties and bridging and bonding social capital (if mentioned) are defined in each study.

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Object of analysis	Definitions of strong/weak ties	Definitions of bonding/bridging social capital
Blacksburg Electronic Village, Virginia, US (Kavanaugh 1999, Kavanaugh et al. 2003)	Strong ties = bonding social capital = thick trust = intensive daily contact, in homogeneous or exclusive communities capable of exercising sanctions ... support, mutuality Weak ties = bridging social capital = thin trust = less personal, links groups to integrate them in one social environment ... instrumental, information resources, increased reach. People who are bridges are members of two or more community groups.	
Telecenter, Toledo, Ohio, US (Alkalimat and Williams 2001)	(concepts not used)	Bonding = from members of local church or immediate community Bridging = from people connected to government or local university
Telecenter in rural England (Liff and Steward 2001b)	Strong ties = more intimate, multiple bases for interaction, mutuality, kinship, traditional community ties, provide a range of resources in times of need Weak ties - boundary spanning, with boundary spanners being members of 2 or more groups	(concepts not used)
Telecenter and classes in an Australian housing estate (Meredyth et al. 2002)	Bonding social capital = strong ties in small groups = e-mail and exchange with diasporic community Bridging social capital = weak ties between many people = local communication and exchange between residents	
Listserv and high-speed internet in suburban development, Toronto (Hampton 2003, Hampton and Wellman 2000, 2003)	Operationalized three kinds of ties: strong ties = have visited each others homes weak ties = talk to regularly knowing ties = recognize by name	(concepts not used)
Youth telecenter, Denver, Colorado, US (Clark 2003)	Strong ties not used or defined Weak ties = those fostered in informal meeting places	(concepts not used)
Cybercafe, Sweden (Ferlander 2003)	Strong ties = to people emotionally close Weak ties = to people emotionally distant	Bonding = to similar people = local Bridging = to different people = global
Telecenter, Toledo, Ohio, US (Alkalimat and Williams 2001)	(concepts not used)	Bonding = from members of local church or immediate community Bridging = from people connected to government or local university
Various IT uses by community groups, Manchester, UK (Williams 2005)	Strong ties = bonding social capital = family/friend, volunteering help, seen once a fortnight, invited home, or living within one mile Weak ties = bridging social capital = workmate/acquaintance, paid to help, seen less than once a fortnight, not invited home, or living more than one mile away	

Table 2. Strong and weak ties and bonding and bridging social capital, as defined in the community informatics literature.

### Conclusion

This examination of community informatics studies that use the concepts of social capital or social networks to examine technology in communities reveals that by and large they contain one of two conceptual frameworks for social transformation, asking one of two questions: Does community technology shape social networks/social capital? or, Do social networks/social capital shape community technology? In the first question, the technology that shapes the social networks/social capital can be said to represent the social engineering of that community. In the second question, the social networks and social capital that exist in a community can be said to represent the historical community, the continuity. Continuity and change are in fact both necessary for community technology. Change refers to the launching of a technology project and continuity to the sustaining of that project. Along the way, a project may morph, as in Clark's telecenter (2003), from a facility that offers training into one that offers online games and entertainment for teens; or from a single computer lab to a training project supporting a set of independent computer labs, as in the case of PrairieNet's East St. Louis, Illinois project (P. Adams, 2007); or from grassroots community networks to public library community information services (Durrance, 1984, 2002). The community network that failed in Skarpnäck, Sweden,

created a change, but could not sustain it (Ferlander & Timms, 2001; Ferlander, 2002, 2003). The historical community, the locals, did not make sufficient use of it.

For a community to move into the information society and the knowledge economy—to surmount digital inequality—it appears to take both the establishment and sustenance of community technology. Examining social networks and social capital can lead to insights about the policy challenges surrounding the launching and sustaining of technology in communities. The role of strong and weak ties in those interrelated processes is not yet well understood. However, Kavanaugh’s work (1999; Kavanaugh & Patterson, 1998, 2001; Kavanaugh et al., 2003) suggests that people who are members of community organizations constitute social-capital-rich nodes in a local social network that can use community technology and make it produce more social capital.

As technology has diffused, it is now possible to study local community uses that arise organically as community organizations pursue their goals and not only those uses that arise from a distinct project launched to serve people in a locale. Dovetailing with Kavanaugh’s focus on community organization members as the Blacksburg Electronic Village project matured, Williams (2005) examines IT use by local groups in Manchester, England. Such groups may be almost invisible to outsiders as they are grassroots and volunteer-driven, but they arise from some collectively identified sense of community and represent a leadership network in their community.

In sum, the core ideas in the literature that has been reviewed here can be stated as follows: across a number of instances of community technology, technology use is directly influenced of social networks, and social networks are directly influenced by technology use. The two questions our studies examine fit together as a historical process. A community finds itself with some form of information technology, technology that has itself been socially constructed. Community factors are alternatively independent variables and then dependent variables in an ongoing historical process. It is essential to clarify how our research sequences technology and community historically. With a nod to the companion work of Simpson (2005), Gaved and Anderson (2006), and Anderson et al (2006), we conclude with the most summative observation: Such is the role of theory in guiding a field of research.

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As the only American Library Association-accredited institution in northern Illinois, Dominican University Graduate School of Library and Information Science educates leaders in the library and information science professions who make a positive difference in their communities. This service-oriented education takes place within the larger context of the university's commitment to values-centered student development and is guided by relevant professional standards and core competencies. The school provides students with an excellent graduate education leading to a meaningful work life. Celebrating its 78th year of Dominican University's commitment to education in this field, the school currently enrolls over 500 students at three Chicagoland locations and is one of the largest LIS programs in the nation.

### Our Mission

As a Sinsinawa Dominican-sponsored institution, Dominican University prepares students to pursue truth, to give compassionate service and to participate in the creation of a more just and humane world.



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Consistently named the top library and information science program in the nation, the University of Illinois Graduate School of Library and Information Science, founded in 1893 at the Armour Institute in Chicago, maintains a reputation of excellence and innovation. The University of Illinois at Urbana-Champaign was founded in 1867, and is regularly cited among leading universities in the United States.

### Our Mission

The mission of the School is to provide:

Graduate education for leaders in research and practice in the fields of library and information science;

Groundbreaking research to advance reservation of and access to information in both traditional and digital libraries and in the many settings outside of libraries where large amounts of critical information are collected;

Useful service to librarians and other information service providers, as well as to the citizens of Illinois.



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