THE CONVERGENCE OF COMMUNITY INFORMATICS AND LIBRARY AND INFORMATION SCIENCE: THE IMPACT FOR LIBRARY USERS

Abstract: This paper explores the relationship between community informatics and library and information science. Community informatics is broadly defined as the use and application of information and communication technologies (ICTs) in local communities. I examine why there is a growing interest in communities, discuss what is community informatics, and examine the relationships between community informatics, community networking and library and information science (LIS). I demonstrate how the LIS perspective can inform community informatics, and highlight issues of shared interest between community informatics and library and information science. Finally, I draw attention to potential areas for collaboration between community informatics and library and information science, and consider the connection with libraries and library users.

Communities – Community Informatics – E-Chicago – Library & Information Science (LIS) – Users

**Dr Chris Hagar**, Assistant Professor, Dominican University; PhD in Library & Information Science from the University of Illinois at Urbana-Champaign, USA; MA History of Science and BA Librarianship, University of Northumbria, UK. Two the most important publications: (2005) The social world (s) of the web (coauthor); (2005) Crisis, farming and community (coauthor). E-mail: chagar@dom.edu
Introduction

Delving into the current edition of the *Encyclopedia of Library and Information Science* neither informatics nor community informatics has an entry. Perhaps this lack of entry indicated in 2003 that library and information science (LIS) educators and practitioners needed to become more involved in this emerging discipline? Were the doors were wide open for collaboration between LIS and those involved community informatics (CI)? In the new edition of the *Encyclopedia of Library and Information Science* to be published this year, community informatics does appear as an entry, now giving recognition to the importance of this discipline in the LIS world.

LIS schools incorporate ‘informatics’ into their programs: courses on social informatics, health informatics, bio-informatics, and community informatics are more commonplace in the LIS curricula. Rather than ‘informatics’, we, in LIS, have more traditionally identified with “library science”, “computer science” or “information science”. Gurstein suggests that the term “informatics” implies something that is lost in the terminology of science, the capacity to act on and through the technology with which one is working. “Where computer “science” suggests the dispassionate gaze and the formal engagement of the scientist, “informatics” looks towards the applications of the technology, towards its use in and on the world in which we are living” [Gurstein 2000]. Proposals appear on university agendas for mergers between LIS schools, schools of computer science into schools of informatics; some are accepted some rejected.

Within “informatics”, a new area of community informatics has emerged which brings together the concepts of information technology with the concept of community development, thereby, bringing together a wide variety of scholars. This article explores the relationship between community informatics, in which my research is based, and library and information science. The research and policy agenda for addressing community informatics is multi-layered, multi-faceted and dynamic. It therefore requires an interdisciplinary research perspective in order for that complexity and inter-connectedness to be recognized and effectively analyzed. The LIS perspective offers an important contribution to this area.

I examine why there is a growing interest in communities. I go on to discuss what is community informatics (CI) and examine the relationships between CI, community networking (CN) and LIS. I draw upon my own research to demonstrate how the LIS perspective can inform CI and highlight issues of shared interest between CI and LIS. Finally, I draw attention to potential areas for collaboration between CI and LIS, and the consider the connect with libraries and library users.

**Communities – a growing interest**

The concept of a community is not new. Throughout the last century, academics have mused on what is a community? Hillery (1955) came up with ninety-four definitions of community and “its definition has continued to be a thriving intellectual pastime of sociologists” [Kruper & Kruper 1996]. What community means has been disputed for even longer than the effects of place” [Bell & Newby 1978]. “Increasingly communities are the contexts within which we can find ways of intervening in and responding to some of our modern dilemmas and critical problems in the environment, in the bridging of social and economic divides, in maintaining the kind of physical surroundings in which we wish to live.” [Gurstein 2001, doc. electr.]. Community development research uses the term as “shorthand for forms of interventions designed to empower people, who may be living in
a given locality or holding a shared set of interests, to take collective action to achieve a greater degree of control in social, economical and political issues that affect them [Scott & Page, 2001].

The realization that information plays a profound role in building and sustaining community on local and global scales has been vividly demonstrated by the reactions of individuals and institutions during recent world events (ASIST). Library and information services have always been at the heart of communities. The study of communities is a central theme in the LIS curricula. Core courses emphasize the central position of communities in problems of information organization and examine access and information needs of particular communities – urban communities, rural communities, minority communities, and more recently virtual communities.

Huysman, Wenger and Wulf (2003) identified three reasons for this growing interest in communities. First within a global knowledge-based society, communities play a pivotal role. Problems such as new forms of political participation and civic engagement, the maintenance of cultural identities, or the integration of minorities need to be tackled on the community level. Also, communities re-shape the process of learning and sharing knowledge in and among organizations. While earlier approaches to sharing knowledge focused on storing and retrieving explicit knowledge represented in documents, communities are believed to be important structures to share implicit situated knowledge as well. Finally new types of communities, e.g. online communities, might change the relationships between producer and consumer. Information technologies may support or hinder these and other types of communities.

Within the community informatics discourse, there is sometimes an enthusiasm for “new communities” and a tendency to idealize these “new communities and new forms of communities [Schuler 1996, doc. electr.]. It is important to recognize that communities are diverse social constructs, what works and is appropriate in one community may not work elsewhere [Huysman, Wenger & Volker Wulf 2003]. How these new communities are enhanced and enabled by information and communication technologies (ICTs) is a concern for CI and LIS.

Having established why there is an increasing interest in communities, in the next section I discuss what makes up this emerging field and ask the question is it new?

What is community informatics?

Community informatics is a multidisciplinary field for the science and application of information and communication technologies (ICTs) to support human communities and their processes. It analyses the complex dynamic relationship between technological innovation and social relationships and is seen as a theoretically new and distinct field [Keeble & Loader 2001, doc. electr.]. These are all processes and concepts, which we also explore in the LIS world.

Some would argue that CI is not a new area, for example theoretical and empirical research on community media has a long tradition. Examples include, the American-oriented field of community media, which can be traced back to the work of Janowitz (1952) and Merton (1949) on the community press. Also, the Department of Communications at the University of Nijmegen in The Netherlands has been involved in the study of community and locally oriented media for the past quarter of a century [Jankowski, van Selm & Hollander 2001].

However, CI not only brings together a wide variety of academics computer scientists, political scientists, sociologists, community planners, social and regional development specialists, urban planners, rural development, but also draws upon the work of environmentalists, political activists community activists, webmasters,
policy makers and media commentators [Keeble & Loader 2001, doc. electr.]. Gurstein (2000) in his introduction to *Community Informatics: Enabling Communities With Information and Communications Technologies* comments that what is particularly striking about the papers in the book is the degree of convergence which could be seen in the papers around questions of community use of ICTs. He describes CI as a “technology strategy or discipline which links economic and social development efforts at the community level with emerging opportunities in such areas as e-commerce, community and civic networks and telecentres, electronic democracy and online participation, self-help and virtual health communities, advocacy, cultural enhancement and others [Gurstein 2000].

Traditionally community informatics has been applied to local communities, now its purview has been expanded to include the diffusion and use of Internet technologies within communities and has begun to explore the diversity of virtual, communities of shared interest rather than those that are geographically constructed. Much effort today in community informatics is finding ways of making the enormous opportunities of Internet connectivity of real value to communities of all types [Rathswohl 2003], in urban, rural and developing countries and explore ways of overcoming the digital divide. CI provides the platform for a more participatory and democratic vision of the network society [Day 2002, doc. electr.].

A variety of CI social experiments is now beginning to provide useful research findings and “examples of innovative applications and a growing source of lay experience and academic research outputs upon which to gain a clear understanding of the developments and their potential consequences for community relations” [Keeble & Loader 2001, doc. electr.].

**CI and Community Networks (CNs)**

CI draws heavily from the on-going practical and research work linked to the area of “community networks” and “community networking” [Schuler 1996]. Day suggests that “the enthusiasm of emergent community informatics practitioners should be informed by the experiences of early community ICT initiative pioneers” [Day 2002, doc. electr.] such as LIS educators and professionals. Computer-based CNs are now defined as “ways to develop and control locally based information systems to support local development” [Gurstein 2000]. CNs are developing worldwide in diverse contexts bringing together communities and activists in conjunction with other local organizations such as libraries, non-governmental organizations and local government agencies.

Their *raison d’être* is to supplement the offline community, by strengthening its presence on the web, thereby making it and its character and services visible in the online world, and by advertising the offline world, making its locality evident, and promoting local service providers. From there new online activities can develop in support of the geo-community, e.g. providing health information sites, social support groups, means to extend offline activities to online (e.g. organizing face-to-face meeting times online), activist organization, and Internet accessibility to disadvantaged and/or marginalized groups. In all, the thrust is local support, local attention and focus: the world of interest is geographically bound, but technologically connected and empowered [Haythornthwaite & Hagar 2004].

In the LIS curricula courses are offered on community information networks which include the social aspects of information systems, use and users of information, biodiversity informatics, and social networks and information. At the Graduate School of Library & Information Science (GSLIS), University of Illinois at Ur-
bana-Champaign (UIUC), USA “Introduction to Networked Systems” students learn lessons in networking- and community- building and are given the option to design and implement a networked computer lab at one of several sites.

LIS educators are not only involved in teaching classes in community networks and networking but also have a long history in providing mechanisms for information delivery and community services, especially in the context of the digital divide and the specific needs of marginalized communities [Bishop et al. 2001, doc. electr.]. LIS professionals and librarians have played important roles in community networking efforts acting as facilitators to establish collaborative partnerships [Mehra 1997, doc. electr.].

Operating out of the GSLIS, UIUC is Prairienet [www.prairienet.org], a member- and donation supported community network founded in 1993, which providing a full range of networked information services to community members in the Champaign-Urbana area, including outreach, training, and the operation of public access sites.

In the Afya project, also established at GSLIS, UIUC, bridges 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 [Bishop et al. 2001, doc. electr.].

Becoming synonymous with community networking is the concept of “digital cities” which focuses on information perspectives such as information infrastructure for connecting digital and physical cities, and on ‘sending information,’ ‘receiving information,’ and ‘participation’ [Ishida, Ishiguro, Nakanishi 2002], and e-government. Having analyzed the relationships between CI, CNs and LIS, in the next section I draw upon one area of my research to demonstrate the interconnectedness and relationships between CI and the concepts and processes which we study in LIS.

**Relationship between my research and CI**

My research focuses on a farming community network in the UK. I explored how information and communication technologies (ICTs) supported the farming community during the foot and mouth disease (FMD) crisis, which devastated rural communities in the UK in 2001. The FMD outbreak brought to world attention the devastating effects of the disease and the social and economic costs of control and eradication; it constituted one of the biggest crises ever to affect the UK farming system. It caused the deaths of over 5 million animals, destroyed thousands of farmers' livelihoods and brought devastation to much of the tourist industry and the rural economy. With 7,000 civil servants, 2,000 vets, and 2,000 troops brought in to dispose of carcasses at the height of the outbreak, MAFF (Ministry of Agriculture) faced a massive logistical exercise “bigger and more complex than the UK involvement in the Gulf War” [Hetherington 2002].

Given the current post 9/11 world, the management of crisis through is an area in which there is increasing interest. This particular study is about a community which is occupation based, where work and home are in the same place, and where a community network was geographically constructed at a time of major crisis. My re-
search contributes to the debate about how technologies affect local and global patterns of community building, communication and networking.

Inadequate communication and the poor management of information were blamed by many as one of the main reasons why the foot and mouth outbreak reached such massive proportions. The UK government was criticized for providing inadequate levels of information and also for disseminating the information in a format, the web, which was not accessible to all farmers. Information for local bodies and farmers was poor and advice from government departments was inconsistent and sometimes contradictory.

During the crisis, movement in the countryside was restricted, farmers were isolated, confined to their farms, often unable to leave the household for several weeks. In this context, information and communication technologies (ICTs) became a vital lifeline to individuals and communities. These technologies provided solidarity, news and access to the latest information on FMD. The Internet became a lifeline for these solitary individuals who came together online, and created a sense of community [Wall 2002].

My research focused on the Pentalk Network (www.pentalk.org) which was one such response to the crisis. This community network was set up during the outbreak as a rapid response scheme to assist farmers and their families in the North West of England. Pentalk, which was designed by farmers, focused on the needs of isolated farmers: access to the most recent accurate information from the government and others on the spread of the disease including recent regulations and attempts to halt the spread of the disease, and a community with whom to discuss these regulations and their own situations. This information network was one of the few positive initiatives to have emerged from what has been described as one of the worst years in history for the rural community.

Selected findings included, links between space and place (both physical and virtual), the emergence of new aspects of community, and the changing roles in the farming household during the crisis. These findings are summarized below:

- **Space and place** – the farming community is naturally geographically dispersed and remote but at the same time it has strong local ties. During the FMD crisis, it was difficult for farmers to sustain their ‘old’ sense of community because many were isolated, unable to leave their farms and unable physically to meet. But also because of the nature of the crisis, there was a great commitment to place. As FMD progressed and spread through their local areas, farmers felt that their communities were under threat. The impending sense of crisis strengthened their identification with a sense of place. While place became important during the FMD crisis, new spaces of interaction also developed. Pentalk created a virtual space, where farmers formed a ‘new’ community during the crisis, offering the opportunity for the creation of new links at a local level. The Internet became a safety net for the farmers, many solitary individuals, who came together online, created a new sense of community [Wall 2002]. The connectivity of the offline community was reduced day by day, as FMD spread, and hit farm after farm, while at the same time increasing the connectivity in the virtual space.

- **Emergence of new aspects of community**

  New aspects of community emerged in Cumbria from FMD crisis. As individuals and households forged new links, they gained a new sense of community within their locality and also beyond: to curb feelings of isolation and alienation and to take back control, people developed novel communities. They became part of multiple communities where rural and urban began to merge, boundaries broke down, access to information widened and ideas flourished online [Bennett et al 2002]. One of these multiple communities in which Pentalk farmers par-
terminated was the global community. A global virtual world was opened up to the farmers, giving them access to new communities of interest. Here lies the irony of a local community network opening up a global virtual world to the farmers and allowed them to use a global network to address local issues. During FMD, farmers explored international farming websites to see how the disease had been dealt with in other countries. Farmers from New Zealand participated in Pentalk chat-room discussions, providing moral support, helping the Cumbrian farmers’ physical and mental well being.

- New actors and changing roles in the farming household

The need for news, information and communication during the FMD crisis brought about a cultural change in breaking down farmer’s inhibitions associated with acquiring IT skills. Learning new skills during the crisis became to be seen as something positive to do in the midst of all of the depression. Within this a gender / social shift also occurred. Before the FMD crisis, it was mainly the woman farmer, who completed the paper work and the computer-related tasks (if a computer was used). At the same time the government was identifying the importance of farm diversification, a way of branching out from traditional farming activities and taking on a new income-generating enterprise. Consequently some women farmers, were becoming involved in other non-farming activities, in order to raise money (income from farming had come to a halt during the crisis) and had less time. Meanwhile the male farmer ‘had nothing to do’ and the pressure inside the family was for the man to learn computer skills.

While the men were learning the new technologies, the women, the traditional connectors for family ties maintained e-mail connections with distant friends and relatives. Within these established roles as communicators women also developed new skills and took on the role of a counselor, providing computer-mediated support to neighbouring farming families, via email, by sharing experiences and by providing emotional support. The management of ICTs, in some farming households, also became a family affair. Children, in-laws and associated family were brought together, during the crisis, sharing their IT skills and learning from each other. ICTs became part of the essential infrastructure of the household and became embedded in everyday farming life; often the PC situated in the kitchen, the centre of the farming household activities.

I examined these issues within the framework of information ecologies [Nardi, O’Day 1999]; from an information perspective analyzing the inter-relationships between the actors involved and tools used during the FMD crisis. I used qualitative methods, primarily semi-structured interviews with the Pentalk co-ordinators, farmers, members of the farming households, who often play significant role in the management of the farming business.

My research brought together the study of a community, communications, the needs and interests of people, access to information and the development and application of technologies. In the course of my research, I established relationships with faculty and practitioners working in social informatics (based in business schools and computing science schools), sociology, land use and rural development, human geography and agriculture who are involved in some aspect of CI. Within the broader picture and in policy terms my research will contribute to the wider current debate on the impact of ICTs on rural activities and to the investigation of the phenomenon of the rise and adaptation of ICTs within rural contexts.

My research demonstrated the linkages between LIS and CI, and highlighted the overlap between concepts and issues studied in the two areas. Below I identify some of these important overlapping areas; areas where there is opportunity for LIS and CI to collaborate and learn from one another:
• a common interest in the relationship between technology and social relationships e.g. computer-mediated communication (CMC), computer-mediated social support (CMSS).

• virtual communities: the relationship between online and offline and communities and the integration of online and offline worlds in order that they support each other [Haythornthwaite & Hagar 2004],

• digital divide issues – disparity of access in communities and within countries, information literacy and training issues,

• organization and access of information,

• “the user” – user-centered design of information systems where the focus is the people who use these systems,

• information needs and information-seeking behaviors,

• capacity building and strengthening community networks,

• information use environments – how context determines information needs and use [Taylor 1991].

In common with LIS research, much of CI research is practitioner based and not about the abstract pursuit of understanding “but rather is about understanding and insight within very specific contexts and where those contexts provide both the interpretive framework and the ultimate “purpose” or goal of the research. Contrary to most academy based research… CI research has the possibility of having an influence on and in the world in ways that more abstract efforts can and do not [Gurstein 2003]”.

Researchers in CI would argue that CI is gradually developing its own theory, arising partly out of experiences with community access and community networks in many different countries and partly out of a need to develop systematic approaches to some of the challenges which ICTs are uncovering [Keeble & Loader 2001, doc. electr.]. LIS can bring to these areas some of its established theory in information seeking behavior, information use environments (IUSE) and information ecologies [Nardi 1999].

Having identified these areas of commonality, in the next section I discuss key areas for potential collaboration between LIS and CI. Two of these areas are related to my own research and two are of a more generic nature.

**Keys areas for potential collaboration**

Of particular interest to my research is the increasing interest in how information is managed, disseminated, and used during crises. Post 9/11, post Tsunami, post Hurricane Katrina, and post many other global crises, it has been recognized that information has a central role in a crisis and be capable of coordinating activities among a potentially large, diverse set of communities, individuals and organizations. The Internet is being used in all aspects of crisis management, providing at least part of the means for information exchange between communities, organizations and citizens. Challenges arise when considering how to improve crisis management from the perspective of the different communities involved. Discussions on the communityinformatics list have focused on “community networks as sporadic and crisis driven conversations” where Cameron (2003) highlighted the dramatic increase in community online activity during the Canberra fires during 2002. My own research has identified the key social support role that ICTs play during a crisis.

Related to this is area, but in a technical capacity, is emergency response management information systems (ERMIS). ERIMS presents opportunities for collaboration in the creation of resource databases and community
collaboration [Turoff 2003, doc. electr.]. LIS with a long history of involvement in collaborative dispersed database systems, such as inter-library loan system, is well placed to make a significant contribution to this area.

A second area for potential collaboration is the appropriation and adaptation of ICTs in rural areas including issues of urban/rural digital divides, intra-rural digital divides, rural networks, changing rurality and the concept of the ’multi-functional’ countryside. Research is demonstrating that the Internet is being used in a variety of ways to re-present, re-create, and re-define, what it is to be rural, to live and work in rural locales, and to overcome what may be seen as locational disadvantages of rurality – such as distance, poor telecommunications, road and rail communications, and a low level of (public and private) service provision per head of the population [Skerratt & Warren 2003]. Issues of rurality are high on European government agendas and present opportunities with CI colleagues.

A third area for potential collaboration is with CI projects in developing countries. These projects are increasing number and offer opportunities in consultancy and research roles. Non-governmental organizations (NGOs), social movements, community organizations using informatics to create local and international networks [Gurstein 2000]. Since the 1980’s, as costs of accessing the web have dropped, NGOs, for example, are using the web to pool information and coordinate activities [Ronfeldt, Arquilla & Fuller 1998]. They use the web to engage locally, linking to each other through the Internet to share information, services and support, and to draw attention to issues of concern. Community networks are being established with the aim of empowering civil society and engendering good and democratic governance.

In the context of research, there are opportunities for LIS researchers to participate in the Community Informatics Research Network (CIRN), set up at the At the Many Voices, Many Places – Electronically Enabling Communities for An Information Society Colloquium [http://www.ccnr.net/prato2003/]. This organization is open to participation and membership by individuals, institutions, for profit and not for profit enterprises and networks, with an active interest and involvement in CI research and particularly those from developing countries.

How do these developments and discussions affect libraries and what is the impact on library users? The next section addresses these questions with particular reference to the recent eChicago Symposium held at Dominican University earlier this year.

**Libraries and users**

Libraries have historically served community technology needs. The second annual eChicago Symposium 2008 “Libraries, Community Technology Centers, and Chicago: Building and Serving our Communities” [http://www.cii.uiuc.edu] brought together those who work in libraries and community technology centers with researchers and public stakeholders interested in the possibilities of technology as a community development tool. Karen Danczak Lyons First Deputy Commissioner of Chicago Public Library opened the conference with her keynote paper “Libraries as technology centers: The Chicago story”. As with most urban centers, two kinds of community services and two distinct networks exist in Chicago: the public library and the CTC. Each provides public access to computers, the internet, and a variety of online tools and digital resources in the context of changing ethnic populations, ever new technologies, and locally driven social and digital initiatives. Both provide services to often-overlapping communities but rarely do these critical access providers engage in dialogue. eChicago brought these two parties together to begin a dialogue.
Questions posed were:

- How do we prepare librarians to help community members use information technology?
- How can libraries engage with ethnic communities to provide technology support?
- How can libraries provide sufficient technology to help communities navigate a shift towards e-Government?
- Young people are using technology in new ways e.g. computer gaming. What tools and approaches can libraries use to support this community of users?
- How does LIS education contribute to building a community informatics workforce?

As we begin to explore these questions we can identify a strong relationship between community informatics and libraries. We can transfer these questions to other cultural contexts, share experiences, and enter into a joint global discussion.

**Conclusion**

CI encompasses a diverse range of practitioners, researchers, policy-makers, and activists; it presents many opportunities for collaboration with other disciplines. In LIS, we can establish ourselves as key players in developing new collaborations and in building on existing relationships with our CI colleagues. There are opportunities to create partnerships in which LIS take the lead, in an area where many are floundering with concepts and processes, which are the ‘bread and butter’ of the LIS world. We must continue to build greater linkages between LIS and CI – inform each other about what we are doing, what we are publishing, findings ways to work on common research projects and forming interdisciplinary partnerships to seek outside funding.

We need to strengthen and build relationships with our CI colleagues, after all that is what LIS and CI is all about, community building.

**References**


