

Community Inquiry and Informatics: Collaborative Learning and Action through ICT

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Learning in Communities

Studies of learning and human-computer interaction have often focused on settings and practices that are relatively fixed and well-defined, such as a college-level course, a workgroup in a company, or a museum exploration. These studies have contributed much to our understanding of the potential and the problems of incorporating computers into collaborative practice. They have also contributed to the analysis of how learning happens in a wide range of settings. However, such well-defined situations represent but a small portion of realities that are relevant to the field of community informatics (CI), which aims to understand how information and communication technologies (ICTs) are employed to help communities achieve their goals (Gurstein, 2004).

In their seminal monograph, Keeble and Loader (2001, p. 3), describe CI as a “multidisciplinary field for the investigation and development of the social and cultural factors shaping the development and diffusion of new ICTs and its effects upon community development, regeneration and sustainability.” Inherent in CI is the need to understand how knowledge is shaped and shared in communities, to investigate the underlying phenomena and processes of learning that we find when take “community” as our unit of analysis. CI research is conducted internationally in settings that range from inner-city neighborhoods to rural villages, exploring how individuals and institutions (e.g., schools, libraries, grassroots groups, health agencies, etc.) come together to develop capacity and work on common problems. It addresses questions of community learning, development, empowerment, and sustainability in the context of efforts to promote a positive role for computers and the Internet in society.

A critical issue is presented when community members, particularly those who are socially excluded or marginalized, are conceived as passively bearing the burdens of illness, malnutrition, addiction, crime, illiteracy, and other social ills. Remedies to these ills, such as improving educational outcomes, providing counseling, delivering food or medicine, collecting information, closing the so-called “digital divide,” or managing development are likewise conceived as actions for well-meaning outsiders to perform. As a result of such top-down approaches, even when remedies succeed, their benefits are often short-lived because the community has made little progress toward developing a capacity for problem-solving and the power to direct its own learning.

In any community, there are multiple forms of interaction and learning with people playing different roles in different groups that have complex relations to one another. For example, a neighborhood may have within it opportunities for groups to form and take action on

educational opportunities, economic development projects, arts festivals, and community health programs. These activities occur in a complex web of relations, with new technologies only adding to the range of possibilities for how activity systems interpenetrate. Our interest here is in how collaborative learning practices in complex settings such as this occur, and how they are shaped by and shape the use of ICTs.

Studies in community learning are moving from deficit- to asset-based approaches, with an emphasis on how communities conduct inquiry to investigate and take action on their realities. For example, a National Science Foundation study carried out in rural villages around Bangladesh related the finding that material from well-worn saris supplied a filtering material that worked better in reducing cholera than the nylon mesh that microbiologists had developed (Recer, 2003). In Reggio Emilia, Italy, with few of the resources found in affluent and advanced communities, families and teachers developed an innovative approach to education, now heralded throughout the world, that recognizes the potential of all children to learn and grow “in relation with others, through the hundred languages of doing, being, reflecting, and knowing” (<http://www.reggioalliance.org>).

CI calls for research that recognizes the ability of even the most impoverished communities to conduct inquiry and appropriate ICTs in ways that respect local meanings and goals (Eglash, 2004; Sugata, 2000; Vehviläinen, 2001; Warschauer, 2003). Innovative action research projects unite community members with university researchers and information professionals in blighted urban neighborhoods in Toledo (Alkalimat & Williams, 2001), across First Nations in Canada (Beaton, 2004), in small town libraries (see <http://www.anna-callahan.com/encyclopedia.htm>), and as part of national information policymaking in El Salvador (Courtright, 2004). Such projects seek to improve education, support economic development, address local health issues, document and express indigenous knowledge, and contribute to theories of social capital and community development. When we look around the world, we find many examples of community-based learning and action, places where people with limited resources are developing creative, liberating and collective means of meeting challenges and goals in daily life.

Early shapers of CI argued for the need to establish “an expansive mode of inquiry” in CI (Bieber, et al., 2002, p. 3). Rheingold (2001, p. xx), specifically noted the need to develop appropriate modes of study in CI that placed research in practice:

“I would like to think that Community Informatics marks the beginning of a new era, neither naively utopian nor paralytically critical, based on actual findings by people who have tried to use online media in service of community, then reported on their results. In the absence of such systematic observation and reporting by serious practitioners, public discussion will continue to oscillate between ideological extremes, in a never-ending battle of anecdotal evidence and theoretical rhetoric.”

At the University of Illinois, the newly launched Community Informatics Initiative (CII) (<http://ilabs.inquiry.uiuc.edu/ilab/cii/>) identifies and supports community-based work that represents the collective inquiry so important in the field of CI. The CII provides a cross-campus home for research, learning, and action; a regional university/community base; a locus for building a critical mass of CI work in the US; and an international hub for this growing field. It supports collaborative activity in the form of: creating knowledge and technology that are connected to people's values, history, and lived experiences; developing models of engagement that are open-ended, democratic, participatory, just, and caring; and bringing theory and practice together in an experimental and critical manner. When viewed from the perspective of learning in communities, we see the challenge facing CI in the form of four key research questions:

- How do communities learn?
- What theory adequately accounts for the complexity and diversity of distributed, collective learning?
- What tools are needed to mediate learning within communities?
- What is the most effective process for developing shared capacity in the form of knowledge, skills, & tools?

Community Inquiry Theory

The CII grounds its work in the philosophy of the American pragmatists, which rose to prominence at the end of the 19th C. and introduced the theory and practice of community inquiry into a range of fields, including aesthetics, education, social work, law and public citizenship (Menand, 2001). Developed most fully in the work of John Dewey, community inquiry is based on the premise that if individuals are to understand and create solutions for problems in complex systems, they need opportunities to engage with challenging problems, to learn through participative investigations, to have supportive, situated experiences, to articulate their ideas to others, and to make use of a variety of resources in multiple media. The aim of community inquiry is to develop a “critical, socially engaged intelligence, which enables individuals to understand and participate effectively in the affairs of their community in a collaborative effort to achieve a common good” (John Dewey Project on Progressive Education, 2002).

Inquiry-based learning, in which people construct knowledge based on the questions that arise in their lived experience, assumes that all learning begins with the learner: What people know and what they want to learn are not just constraints on what can be taught; they are the very foundation for learning. For this reason, Dewey’s (1956) description of the four primary interests of the learner are still a propos: inquiry, or investigation—to expand one’s understanding of the world; communication—the desire to enter into social relationships; construction—the joy in creating things; and expression or reflection—the drive to articulate experience. Dewey saw these as the natural resources, or uninvested capital, out of which grows active learning and participation in society. This is true for the child, the adult, or the community as a whole.

Inquiry-based learning is an attitude toward work and life, consisting of eager and alert observations, a constant questioning of old procedure in light of new observations, and a use of grounded experience as well as recorded knowledge. It also implies a relish, emotional drive, and a genuine participation in creative phases of work, as well as a sense that joy and beauty are legitimate possessions of all human beings, young and old (Mitchell, 1934). Thus, inquiry-based learning, usually conceived as an individual process, is also a community process, one we might highlight as community inquiry, although the adjective is, in the final analysis, redundant (Bishop, Bazzell, Mehra, & Smith, 2001; Bruce & Davidson, 1996; Bruce & Easley, 2000).

A cornerstone of community inquiry is that it aims to respond to human needs by democratic and equitable processes. A successful community of inquiry is not one in which everyone is the same, but instead one that accommodates plurality and makes productive use of difference, accepting crisis as an often necessary aspect of true learning and social transformation (Clark, 1994). In the establishment and accomplishments of Hull-House, Jane Addams most fully demonstrated community inquiry’s tenet that democracy must extend beyond political expression to permeate the entire social organism (Addams, 1910, 1930; Elshtain, 2002). The communities of inquiry centered in Hull-House claimed enduring achievements in community

research, action, and policy, including major reforms in child labor law and drastic reductions in disease and death in Chicago's tenements.

Communityware for Inquiry

Community inquiry and informatics combine in the "pragmatic technology" (Hickman, 1990) approach to community-based ICT creation and use. Pragmatic technology encompasses the common language notion of how to design tools to meet real human needs and accommodate to users in their lived situations. It also sees ICTs as developed within a community of inquiry and embodying both means of action and forms of understanding; ICTs are an end result of, as well as a means to accomplish, community work. Day and Schuler (2004) clearly resonate with the ideas and practice of pragmatic technology in declaring the "subordination of ICTs to building healthy, empowered, active communities" (p. 15) and noting simply that "researchers are part of the world in which they live" (p. 219).

Two cornerstone CI projects based in the CII—Prairienet and Community Inquiry Labs—are helping us learn how pragmatic, community-based technology initiatives can respond to human needs democratically and support participation and learning across institutional and social boundaries.

The Community Inquiry Lab collaborative (<http://ilabs.inquiry.uiuc.edu>) develops software to support community inquiry and provides training and education, consulting, and action research in community inquiry and informatics to non-profit organizations and individuals worldwide. The collaborative has produced iLabs, a suite of free, open source, web-based software that is developed, in an open and ongoing fashion, by people from all walks of life, and representing different countries and a wide range of ages. iLabs have been used to create hundreds of interactive websites that support the communication and collaboration needed to pursue inquiry in classrooms, community centers, libraries, professional associations, research groups, and other settings (Bishop, et. al, 2004). iLabs includes software for library catalogs, syllabi, document sharing, online inquiry units, discussion forums, blogs, calendars, and image galleries.

Prairienet (<http://www.prairienet.org>) is a thriving 10-year old community network. Through Karen Fletcher, it has pioneered an innovative community-wide systems analysis process, in which inter-institutional consortia form to develop and implement together web-based CI applications, such as a set of health and human services information and referral directories, a multi-county volunteer matching system, a service to support the provision of emergency drop-in childcare in local institutions, and a system that manages the process of sharing excess "stuff" (from computers to couches to crayons) among community organizations. Prairienet also runs an ongoing program of establishing community technology centers in non-profit organizations and low-income neighborhoods. Through Martin Wolske's computer networking course (<http://www.isrl.uiuc.edu/~mwolske/lis451/spring05/>), students work with homeless shelters, after-school clubs, churches, community centers, and other organizations in Champaign-Urbana and East St. Louis to install computer labs.

Both Prairienet and iLabs represent experimentation in the integration of community inquiry and informatics. Through collaborative effort (both implicit and explicit, purposive and unknowing) in the creation of content, contribution to interactive elements, incorporation into practice, suggestions and questions, reports of what works and what doesn't, and ongoing discussion, community members are not merely recipients of these technologies, but participate actively in their ongoing development, yielding enhancements which are then available to all users. We have referred to his process of software development as "design through use" or "participatory inquiry."

Community Inquiry and Informatics in Paseo Boricua

The CII's Paseo Boricua Community Library Project (Bishop and Molina, 2004) provides one scenario of melding collaborative practice in inquiry and informatics across university and community settings. Paseo Boricua is a mile-long section of Division Street in Chicago's Humboldt Park area. It is a vibrant neighborhood characterized by strong, multi-generational, multi-institutional community activism, where about 70% of residents are of Latino origin, and 30% of families are living below the federally-defined poverty level. Paseo Boricua embodies the development of an autonomous cultural, political, and economic space for Puerto Rican and Latino/Latina residents that came into being as a response to encroaching gentrification and displacement in nearby sections of the city (Flores-González, 2001; Rinaldi, 2002). The Puerto Rican Cultural Center (PRCC) has served as an institutional anchor in Paseo Boricua for thirty years, galvanizing neighborhood residents around issues such as poverty, gang violence, AIDS, destruction of cultural identity, lack of educational resources, and racism (<http://www.prcc-chgo.org>).

Along with Lastra (2004), we recognize the pragmatic and analytic import of neighborhood events for community inquiry and informatics. Events organized through the PRCC and its affiliated organizations over the past year include: fiestas, parades, protest marches, mural restoration and dedication, a film festival of movies created by young Puerto Rican film makers in Chicago and Puerto Rico, a neighborhood survey of residents' concerns and aspirations for a participatory democracy project, a community forum on a proposed health education program, an obesity survey and body mass index collected from over 500 people attending a festival, production of a bilingual community newspaper, and a community lecture series conducted in collaboration with a local university.

Any single event in Paseo Boricua typically involves a range of individuals and organizations and a number of different modes of interaction. We can see this with a snapshot of one event: "Noche des Gritos," described on the PRCC website (http://www.prcc-chgo.org/grito_de_lares.htm) as a "learning event for young and old" that brought people together to discuss both the 1868 insurrection that launched Puerto Rico's struggle to become an independent nation and the uprising for Mexican independence. Noche des Gritos was co-sponsored by two local organizations related to the PRCC: the Café Batey Teatro Urbano (an outlet for expression and social action created by and for youth); and the National Boricua Human Rights Network. It included history presentations along with poetry and prose readings and a question and answer period focusing on the political prisoners from Paseo Boricua who are currently incarcerated in U.S. prisons. At the close of the evening, organizers passed out the latest issue of the National Human Rights Network newsletter, and bookmarks with biographies and addresses of the political prisoners printed on the back. The description of Noche des Gritos on the PRCC website also provides insights into how ICTs were used to support the event. The presentations included digital slides, the newsletter is newly available on the web, and a website link is provided for people who want to write to the political prisoners.

A focus on events has helped us learn how community activities within Paseo Boricua are not only various and multi-form, but dynamic in that the participants, modes of interaction, and use of technology continuously shift. Our university-based research team has worked with Paseo Boricua over the last three years, exploring the creation of both communities of inquiry whose participants are drawn from all walks of life, and communityware to support collaborative inquiry.

The Paseo Boricua Community Library Project aims to create a distributed community of inquiry whose participants come from all walks of life, and in which each participant has both something to learn and something to contribute. Our goals are to: learn how to mobilize neighborhood information and cultural resources and technology and connect them to the work of local activists; build capacity in the realm of digital technology, and enrich library and

information science with the experiences and knowledge of Paseo Boricua residents. Within the context of the project, we are creating a community library in the PRCC by cataloging its collections of books, original liberation posters, and human rights network archives. We are also developing services, such as homework help and family reading nights. In the course of this work we are pragmatically using (for general communication and coordination) and creating (e.g., a web-based library catalog) iLab software, as well as exploring forms of collaboration appropriate to life in the neighborhood and its ethos of self-determination, self-reliance, and self-efficacy. These include a Saturday street academy course in community librarianship for youth, community cataloging work days, a community-curated exhibit of artwork by political prisoners, a university workshop on libraries and civic engagement, and a symposium jointly led by university and neighborhood participants that was devoted to the concept of "community as intellectual space" (<http://www.conferences.uiuc.edu/conferences/conference.asp?ID=357>).

Closing Words

Collaborative inquiry has helped us investigate community interactions in many ways, come to a better understanding of "community" as a unit of analysis in multiple endeavors, and experiment with modes of open and mutual learning as a primary process for a range of disparate activities, from software development to the installation of art exhibits. In this position paper, we highlight the connection between community informatics and community inquiry. In closing, we recall the words of the Kellogg Commission (1999) in its groundbreaking report on the public engagement mission of universities: "Values deserve special attention in this effort. We dare not ignore this obligation in a society that sometimes gives the impression that character, and virtues such as tolerance, civility, and personal and social responsibility are discretionary." If we do, we risk creating, in the words of John Dewey, technologies that bring "much unloveliness and suffering" to the world (Ratner, 1939).

Acknowledgements

We wish to thank the Institute for Museum and Library Services and National Science Foundation, whose support helped create the iLab software and the Paseo Boricua Community Librarianship Street Academy. We are grateful for the creativity and hard work of all members of the iLab collaborative (including Cameron Jones and other programmers at UIUC and neighborhood activists and students in Chicago) who contributed their considerable energy and expertise to the development of community informatics in Paseo Boricua. Our work in Chicago and the development of the ideas in this position paper would not have been possible without our fellow researchers: Alejandro Luis Molina, José E. López, Laura Ruth Johnson, Mayra Hernandez, and Yarimar Bonilla.

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