# Bringing Feminist Perspectives into Community Informatics

**Katrina Peddle**, Concordia University, is a student researcher for the Canadian Research Alliance for Community Innovation and Networking (CRACIN), investigating information and communications technology (ICT) in rural Atlantic Canada. Her thesis focuses on how youth in Labrador use photovoice to discuss issues of racial identity. **Alison Powell**, Concordia University, is a student researcher for CRACIN, investigating the use of WiFi by community groups, with focus on the community wireless movement. **Leslie Regan Shade**, Concordia University, is co-investigator on the CRACIN project. Her research focuses on the social, policy and ethical aspects of ICTs.

**Abstract**

Through analysis of two Canadian Research Alliance for Community Innovation and Networking (CRACIN) case studies this paper argues that feminist perspectives strengthen community informatics (CI) theory. While feminist CI has addressed the dynamics of access and intricacies of technological design, labor, both gendered and invisible, is one area that needs further refinement in CI.

**Résumé**

À travers de deux études de cas de la Canadian Research Alliance for Community Innovation and Networking (CRACIN) cet article soutient que les perspectives féministes renforcent la théorie de l'informatique communautaire (IC). Pendant que l'IC a adressé la dynamique de l'accès et les subtilités et le travail, à la fois divisé par le sexe et invisible, ceci demeure un domaine qui a besoin d'advantage de raffinement dans l'IC.

The Canadian Research Alliance for Community Innovation and Networking (CRACIN) (www.cracin.ca) was a Social Sciences and Humanities Research Council (SSHRC) project with goals to critically analyze Canadian community-based information and communications technology (ICT) development in the context of federal government programs that promoted the development and public accessibility of Internet services. Structured case studies of selected Canadian community networking (CN) initiatives were undertaken with community partners using participatory action research (PAR) approaches to assess their contribution to community social and economic development. Community informatics (CI) was the over-arching lens utilized for theoretical analysis.

As we argue in this paper, feminist perspectives enrich CI through robust and critical analyses into how community-based organizations negotiate internal and external organizational cultures and constraints. In fieldwork conducted at two case-sites, Peddle and Powell realized the efficacy of applying feminist perspectives to an analysis of their community organization alongside their role as participatory action researchers. In particular, a feminist lens yields important insights into the nature of labour - within analyses of CN organizations and also as academic researchers in a PAR context.

Peddle analyzes the Western Valley Development Agency (WVDA), the regional development body for the western valley region of Nova Scotia. WVDA operated the Western Valley Community Net which offered regional low-cost web hosting, mailing lists and email accounts to companies, community groups and individuals, alongside establishing dozens of community Internet access sites and facilitating the installation of a community-owned broadband fibre-optic

network. Despite its success, WVDA ceased operations in 2005. Peddle outlines how capacity building is an important element of community development that is undefined and invisible. Extrapolating from WVDA and women and leadership literature, she argues that such feminized forms of labour are largely ignored in CI.

Powell reflects on her role as an embedded researcher for Île Sans Fil (ISF), a voluntary organization in Montréal that has created and maintained over 130 public Internet access points. ISF is Canada's most successful community WiFi network in terms of its resiliency, software development and innovative promotion of local community artistic content in a city that prides itself on cultural vanguardism. ISF volunteers, self-identified as "geeks," are for the most part young white technically-adept men, and as Powell discusses, when women have been volunteers at ISF, their labour has been gendered and invisible.

**Community Informatics**

Community informatics analyzes the enabling uses of ICTs to achieve community social, economic, cultural or political goals. Bringing together various stakeholders - community activists and groups, policymakers, users/citizens, artists and academics - its emphasis on community is implicitly in the foreground. CI "combines an interest in the potentially transforming qualities of the new media with an analysis of the importance of community social relations for human interaction" (Keeble and Loader 2001, 3). It is "concerned with the development, deployment and management of information systems designed with and by communities to solve their own problems" (McIver 2003, 33). And via incorporation of "the user and his [sic] community into the system design process [it] introduces 'stakeholders' into an extended approach to ICT design, development, and implementation" (Gurstein 2000, 6). CI applications include community Internet access, delivery of community information, online civic participation, community economic development and development of learning networks (O'Neil 2002).

We argue that CI needs to further acknowledge feminist contributions in science and technology studies (Wajcman 2007) and welcome new feminist interventions. CI perspectives that integrate gender highlight capacity building in relation to women's empowerment, strengthening learning communities for sustainability, instituting social literacy, access, training and content efforts, and the importance of design in user-technology relations.

Salient CI literature that is explicitly feminist in orientation include Webb and Jones' (2004) analysis of Women Connect, a London CN that uses diverse communication tools to strengthen the skills and development of women within their local communities. They stress the value of capacity building in evaluation and particularly whether women have influenced policies that affect their lives. Also drawing from Women Connect, Page and Scott (2001) argue that CI sustainability depends upon conceptualizing and strengthening "learning communities" as dialogic and playful spaces where learners can inform themselves about new ideas and events and engage critically and creatively with their differences, while constructing new models of learning.

Bishop *et al.* (2001) in the Afya project for African American women to increase access to quality community health information stress the importance of bridging the technological and the social aspects of the digital divide. To understand barriers to use of technologies by specific users, Oudshoorn *et al.* (2004) advocate a semiotic approach to user-technology relations. Even in instances where users are not involved in the design stages of technological artifacts, they argue that envisioning how designers imagine and configure their users is a useful strategy. Focusing on the gender identities of the designers and users can shed understanding on how products constrain specific users, particularly women.

**WVDA**

Western Valley Development Agency (WVDA) was considered an international innovator. As a core-funded community-based organization, it was active in community development, particularly with ICTs. In 2005 it closed because of lack of municipal support; as a regional development authority under the *Regional Development Authority Act* (RDA Act), municipalities contributed one third of the organization's core funding, essential for matching provincial and federal monies. Core funding was supplemented by project funding from programs with a CI focus. Project funding exceeded core funding by a factor of ten to one, especially with the Smart Community project. It was one of ten national multimillion dollar demonstration projects designed to make communities "smart" in their use of ICTs. This section outlines how the invisibility of feminized community development work relates to the closure of the WVDA and discusses perceptions of who can engage in business development. The decision to close WVDA must not be reduced to essentializing notions of gender difference. Rather, it is important here to reflect on the role of gendered forms of work.[1]

The WVDA had a sustained commitment to capacity building while municipal stakeholders felt that business development investment yielded better regional results. Two salient issues are: 1) capacity building work is feminized and therefore invisible; and 2) lack of municipal support is demonstrative not only of the invisibility of WVDA's capacity building activities, but underlines a lack of confidence in the organization's ability to work on business development.

**Situating and Critiquing Capacity Building**

Capacity building is the "increase in community groups' abilities to define, assess, analyse and act on health (or any other) concerns of importance to their members" (Labonte and Laverack 2001a, quoted in Gibbon *et al.* 2002, 485). Cook and Smith (2004) consider capacity building an essential element of CI. While acknowledged and supported at the theoretical level, in practice capacity building often involves caring work that is typically undervalued. While demands are placed on CI organizations to provide quantitative results of their work, these are problematic in the broader context of CI initiatives where outputs are often social in nature and thus hard to measure.

Lennie (2005) underlines the importance of participative frameworks in community development, an iterative engagement allowing meaningful contributions by community members, arguing for the importance of the process rather than simply an end goal (for example, job creation). It can be argued that the WVDA was a participatory organization engaging in a participatory evaluation process that included one hundred fifty stakeholder interviews when deciding upon the organization's direction. Collective visioning is closely aligned with capacity building, a leadership style considered by municipal representatives to lack focus (Municipal Councillor 2005).

Given conflicts over what is recognized as legitimate community development activities, capacity building needs to be situated within a broader understanding of empowerment of community members, predicated on valuing participation. Key influences in the empowerment paradigm include emancipatory pedagogy, feminist pedagogy and participatory action research, with a focus on the community versus the individual level.

Capacity building has been criticized for being difficult to define, operationalize and measure (Gibbon *et al.* 2002), thus exemplary of the invisible nature of community development work. Invisible work refers to "work that remains unseen and unrecognized; including work done by invisible people, routine work and informal work processes" (Nardi & Engestrŏm 1999). As such, one can understand capacity building as a form of feminized labour typically undervalued and often unseen (Stall & Stoeckler 1998).

The feminization of capacity building

is a phenomenon that has yet to be illuminated in CI literature. The literature on caring work has long critiqued the dominant societal perception that caring is an essentially feminine characteristic. It is rather via gender socialization that women learn to care in both paid and unpaid labour (Baines *et al.* 1991). Caring work is typically undervalued and invisible and we argue here that much of the capacity building work done by men and women at the WVDA falls into this category. Critically assessing the theoretical basis of capacity building furthers reflection on the role of invisible labour in CI organizations.

**Community Informatics at the WVDA**

The WVDA was created at a time of high unemployment and change in the Western Valley and made a dedicated effort to build community resources and secure projects for the region. The WVDA focused on building individual capacity through youth intern and computer training programs and on building business capacity through its e-business program. However, issues of confidentiality (for example, meeting with individuals seeking to start businesses) limited the organization's capacity to measure outputs quantitatively. This focus on process as a vehicle for community development was a source of conflict between WVDA staff and certain municipal partners, who expressed frustration with "too much capacity building" and urged the WVDA to instead focus on local business expansion. While attracting new businesses into the region was a WVDA priority, municipal representatives stressed that WVDA should perform its mandate with accountability for how and with whom its time was spent. This reflects a move away from a process-oriented approach to a managerial focus on products. A collaborative team approach predicated on a positive attitude, group accountability and inclusion was key to work at the WVDA. Indeed, such an approach is different from traditional top-down leadership models.

The WVDA contributed significantly to the local region through partnerships to support community learning, notably an online library catalogue that increased the number of people accessing the collection (Librarian 2005). One community resource person recounts her work as a member of a WVDA Smart Community advisory group:

> It was quite a diverse group, but it was great. You learned a lot, well I did, from the other members. It was really good. In that advisory role strictly, they [WVDA] sort of wanted a community-based governance. Well, it was not governance, because it was not governed by us, but they just wanted input from the community in general to make sure they were going in the way the community would have wanted, rather than just the organization taking it on. They didn't have to strike an advisory committee, they just felt that they wanted to have that capacity, which was good, especially in the first couple of years of that project while things were taking shape. (Librarian 2005)

Although the WVDA valued capacity building, it also was active in larger-scale business negotiations. Following several years of lobbying the incumbent telephone service provider ("telco") to extend broadband service to the region,[2] the WVDA (in partnership with the municipalities and a large post-secondary institution), succeeded in negotiating with two small telcos to create a community-owned broadband fibre network. In the same year that the network was secured, the municipalities began to voice serious concerns about the organization's approach to community economic development. One municipal councillor explained his concerns with capacity building in this example:

> [WVDA] has done a very commendable job and they should be commended for it. But when I was younger there wasn't much money around and a lot of people, you would see them build a basement and then

> move into it and they would live in the basement for one, two, three years, while they were collecting money to build the house on the basement. I had an uncle who built a basement and he lived in the basement so long without building a house on it that the walls of the basement actually started to crumble because it didn't have the structure to hold it together. And that's where I feel our area is at that point now. I feel as far as the foundation for a business environment, the WVDA has built an excellent one and they're to be commended for the job they've done. But now is that time that we have to stop working on a basement or stop living in our basement and start building the businesses that use the structure. The development agency has been focused on capacity building. (Municipal Councillor 2005)

The perspective articulated by the councillor asserts that capacity building would actually hinder the community and ignores the large infrastructure project that the WVDA had championed. It also dismisses the organization's ability to work with businesses. With a more specific focus on explicitly business related activities there was less room for broad-based CI initiatives that were a substantial part of the WVDA's mandate.

**Feminized Labour and Invisible Work in Community Informatics**

It seems initially that an ideological clash over what counts as legitimate development activities was at the heart of WVDA's closure. Page and Scott (2001) argue that a shared vision of social justice is key in CI and in this instance such a common vision was palpably absent.

The refocusing of priorities at the WVDA belies a deeper conflict around what type of work is valued. It is clear that the work of business attraction, retention and expansion were the priorities of the municipalities, with the assumption that this would further social development in the area. Municipal partners did not see the WVDA as an organization that could focus adequately on building businesses, despite its many successes in regional development and its notable accomplishments in establishing community-owned broadband infrastructure. This demonstrates a lack of municipal faith in the organization's leadership and also points to assumptions about who can perform this type of work.

Women played important leadership roles at the WVDA. Given the white masculinized fields of engineering and computer science (Cockburn 1999), the contributions of women leaders to CI trouble traditional gender roles around work (Meiners and Fuller 2004). The scarce analysis of gender roles in community development reflects a conceptual marginalisation of the role of gender in this process generally (Leavitt 2003).

Feminist approaches to community development emphasize collaboration, a perspective that was in conflict with the desire for "hard outputs" (for example, a quantitative record of how many businesses were started in the area as a direct result of working with the WVDA) articulated by certain municipal partners. Another challenge to measuring outputs was the collaborative and facilitative nature of the WVDA's work. However, it is difficult to dismiss the conflict between the organization and its municipal funders as simply a lack of interest in business related activities, given the WVDA's expertise in negotiating large telecommunication partnerships. Rather, it is more a demonstration of who is considered capable of engaging in business than a lack of business orientation at the WVDA.

The municipalities attempted to

rationalize community development by bringing it under more direct municipal control. This move away from capacity building activities requested by municipal funders devalues the relational aspects of community development work and parallels the ways in which caring work has been unseen in other arenas of paid labour, including nursing and teaching (Graham 1983). One WVDA staff member elaborated on the challenges of doing work that is not visible nor easily quantified, but still relates to business development:

> I have other things that I have been involved in that I think are very strategically important for the organization, like the broadband. We need somebody to keep pushing that. I mean, what is really important now is that we get users, that we have demonstration projects, and it is kind of like, we thought we could build it and people would start coming to it, but the applications aren't there yet, and the timing is just not quite right yet, so you have to keep demonstrating how people can use it, to engage people, and that is just like, that is not an easy task, you know, lot of behind the scenes things that people don't see but people are working on it all the time.
>
> (WVDA staff member 2005)

Given the frustration of municipal representatives at the alleged lack of tangible outputs from WVDA, it is apparent that this invisibility of everyday development activities was a factor in their concerns. This lack of recognition is surprising given the WVDA's aggressive marketing of the Western Valley and promotion of its activities which won it national and international recognition.

It is clear that at the WVDA, participation and the work that facilitates it was an important priority that did not fit into tightly monitored and rationalized visions of community development. The WVDA's struggle with doing "too much capacity building" in community development highlights how feminized forms of labour are largely invisible and ignored in the CI context.

**Gender, Difference and Partial Perspectives in Community Technology Development**

Compared to funded projects within established community organizations like the WVDA, grassroots community technology projects present different contexts for the gendering of work and the gendering of technology development. As a rule, few non-specialists have a chance to participate in the design of ICTs. A look at the gendered environment of a non-commercial ICT production environment adds an explicit focus on cultural power to feminist political economy of communications. Through reflexive participant observation as a research method and a focus on the gendered aspects of ICT production in a non-hierarchical, non-commercial setting, the analysis becomes more subtle, as the expected conceptual link between masculinity, power, knowledge and technology is broken. Community informatics research shifts the perspective on technology production away from an exclusive focus on materialism and consumption. Projects like ISF where technology production occurred outside of commercial settings and where open-source software was produced by voluntary contributions appear to provide examples of more democratic, community-oriented technology production. Yet as participatory, "embedded" research with ISF indicates, even such an environment requires a negotiation of situated, partial knowledge in order to fully break down the association between masculinity and technological mastery.

This section reflects on participatory research conducted with the community wireless networking group Île Sans Fil. ISF is a group of volunteers centered in downtown Montreal who created and maintained a network of over one hundred Internet access points managed by a piece of open-source software they created. The software presents a unique "portal" or opening web page at each

of the access points, where news and images pertinent to the location appear. ISF's founders wanted to connect public Internet use to location-based services and the delivery of local media content. To achieve their goal, they partnered with business owners to offer free WiFi to clients and developed the functionalities of their software to distribute "ultra-local" news and emerging local art on the portal pages. The software also managed overall use of the network. The entire project was run on volunteer labour. Volunteers were for the most part young, male, self-identified "hackers" or "geeks" - people who liked, understood and engaged with technology, and identified this engagement as a key part of their identity.

Geeks and hackers are key actors in community technology projects, where the official hierarchies of expertise present in large research and development organizations are absent. While women have long worked in industrial technical design as researchers (Suchman 1987), the woman researcher in community ICT development is both a token and simultaneously "one of the boys" - both inside and outside the inner circle. This position within the group mirrors the theoretical and philosophical position Haraway describes as "partial perspective" - the ability and necessity to see non-objectively, breaking down the hegemonic, masculine myth of the objective observer (1991). The following sections describe, from such a partial perspective, the social and technical negotiations that constitute community-based grassroots ICT design and development.[3]

The presence of an embedded researcher played an important role in creating legitimacy for ISF. Academic affiliation helped the group when it applied for funding or submitted conference proposals. Yet for many of the group's members, research activities were not considered as real contributions to their central projects - building their network and developing their software. Research, like other "non-technical" activities associated with technical development, is gendered as female. Yet by constructing the research position as explicitly embedded in the group, the CRACIN project attempted to promote a perspective wherein different perspectives might come to bear on technology development.

## Boys and Toys: Gendered Technocultures

Many social and cultural practices marked ISF's culture as predominantly masculine. Members met in a bar to drink beer and talk about technology. They used jargon and technical language to communicate and often spent their time together gazing at their computer screens. They liked to make things work well or better and were fascinated with new technological developments. Knowing about technology and being able to use it to change things made them feel strong. As Cockburn (1983), Wacjman (2004) and Faulkner point out, gender identity and technology are mutually constituted. As Faulkner writes, "the fact that popular images of both science and technology are strongly associated with the masculine side of [gender] dualisms must be one of the reasons why, in a deeply gender divided world, most girls and women don't consider a career in engineering" (2000, 11). A mastery of technology is associated with a certain type of masculinity, with control and detachment.

However, at ISF, technology was also fun - a leisure activity that members pursued in their spare time. The group nourished a certain kind of masculinity that valorized its members. This was positive for male members of ISF, but posed questions about whether such a community technology project provided the same benefits to female members who did not conceive of their engagement with technology in the same manner. The joy that many male members drew from working with technology might have excluded women who did not express their engagement with technology in the same way. As Mellstrŏm writes, "engineering practice tends to reproduce patterns of homosociality" (1995). Women were not exactly part of the

club - even if they were invited with good intentions.

**Inside and Outside: Women in Community ICT**

No member of ISF would claim that the group excluded women and to say so would be untrue. About ten percent of the volunteers were women and many of them made significant contributions to ISF's projects by raising grant money, curating art projects, proposing usability studies of the portal page, coordinating media relationships and creating marketing packages. Yet no female members of ISF were programmers or software developers. Considering that these activities carried a high social value, it was difficult to explain or quantify the contribution of women volunteers' activities to the advancement of ISF's projects. For the most part, they were opaque to the rest of the volunteers, who were not able to reconcile their utility or functionality as compared to the utility of producing code or other technical developments. In part, the prioritization of technical work was linked into the ability to gain status and financing through the development and promotion of the group's software, which grew into a separate revenue-generating project. Yet this prioritization of difficult technical work was also linked into the gendered culture of ISF. Within the group, certain actions related to the production of technology were already gendered as male, such as programming, while others were gendered as female, such as design, marketing or social research. For example, a female member created a new user interface for the portal page that she hoped could replace a previous interface. Despite her presentation of it at several meetings, she was perpetually ignored or even dismissed. No one responded to her messages posted on the mailing list. Her interface design work, which combines analysis of human behaviour with software programming, transcended the categories of "masculine" software development and "feminine" research and design work. Since it was impossible to get a clear definition of how to position her boundary-crossing work, other members may have just ignored it until they could better define it. She finally completed the new interface design in partnership with another member - a male web designer.

The modes of relation between ISF were also gendered with direct and assertive communication styles prioritized - in the "talk louder and faster" mode of relationship that has been observed in engineering schools (Hacker 1990). Male members of ISF expressed that they would have liked to promote the inclusion of a more diverse group of people, but many of them, trained in engineering schools and private single-sex institutions and accustomed to mediating their relationships through technology, just simply "didn't know how to talk to girls." The relationship to gender was conceived of as a problem of "how to get more girls to be geeks," with a presumption that "girls" in ISF would behave, conceive of, and communicate in the same manner as the "boys" who then made up most of its members. This perspective is typical of what Faulkner (2000) calls the "women in technology" movement, which essentializes gender, assigning masculine qualities to technology and posing as its central problem the lack of women in science and technology, as opposed to interrogating the culture of gender in science and technology.

It is clear that women within ISF have made contributions to the group's organization and to the design and structure of its software products. However, as Suchman and Jordan (1989) point out, these contributions are not always valued, since women's perspectives on technological development are not recognized as "actual work." Suchman calls for an inclusion of feminist frameworks in technology to provide a wider interpretation of work roles that take into account the situatedness of work tasks:

> Feminist research displaces traditional preoccupations with abstracted and decontexualized forms of knowledge in favour of

> particular, specifically situated practices of knowing in action....it directs attention always to the labours (particularly those previously ignored) that are an essential and ongoing aspect of sociotechnical assemblages. (2005, 6)

**Masculine Technocultures vs. Sexism? Where is the Line?**

The development of a gendered design environment produced moments where masculine culture edged towards sexism. Once, a member of ISF distributed a message on the listserv implying that the women members might be willing to perform sexual favours to promote ISF. It was a joke, of course, but the women members (affectionately called *les filles sans fil* or "wireless girls") were not amused. Responses ranged from quiet shock to a questioning of one's implication in ISF. The member who originally posted the message apologized in due course, and several *filles sans fil* continued to work with ISF, but the email underlined the difficulty of working for progressive gender politics at ISF.

In all-male spheres, sexual humour is often tolerated and considered to be the norm; likely the author of the mail considered the women as being part of the "ISF gang." But the difference presented by integrating women into an environment marked as masculine made this assumption difficult to support. In short, the "wireless girls" were not men, and their troubled response to the mail reiterated that their presence required a different kind of social code than the "natural" sexual humour of an all-male social group. The tension that this difference created and the sense that ISF remained, despite apologies and attempts at inclusion, a masculine space, reveal the deeply complex cultural engagements between gender and technology. With its apparent horizontality and simultaneous negotiation between heterarchy and hierarchy, a social environment was created at ISF that made it more difficult for female members to negotiate "extraordinary juxtapositions of positive and negative feelings about technologies" (Faulkner 2000).

By focusing on the essential difference between masculine geeks and "wireless girls" instead of on the way that the partial perspectives of individual members contributed to the development of ISF's technical and social projects, ISF failed to capitalize on the potentially radical ability of a community organization to reshape technical development.

**"The Researcher is a Girl" - Gender Roles in Research and Practice**

Many community wireless networks like ISF have members who are actively engaged in research and reflection and a disproportionate number of these are women. Women have often been part of laboratories and sites of technical development - traditionally in invisible supporting roles, but present. The woman researcher is both a token (an ISF member, when faced with a question about the small number of women in the group, responded, "well, the researcher is a girl") and "one of the boys" - both inside and outside the inner circle. This position within the group mirrors the Haraway "partial perspective" mentioned earlier - the ability and necessity to see non-objectively and situate the viewer as always in the process of becoming and always in the process of creating the location of her vision, which does not presume its necessary objectivity. It seems possible that the negotiated role of "embedded researcher" might help such a partial perspective to develop. However, when partial perspectives are not integrated into the development culture, the work of the embedded research becomes less visible.

**Conclusion**

In this paper we argue that gender is an important element of CI research currently undertheorized in the CI literature. What types of labour are acknowledged and considered legitimate (and thus visible) must be further investigated. CI is a field predicated on

participation and questions regarding who participates and in what ways do they participate must inform the growing literature.

Certainly, women involved in community technology projects, especially if they are not technicians or technical experts, are not necessarily approaching their involvement from the same perspective as their male colleagues. Assuming that it is possible for a woman to seamlessly become "one of the boys" undermines her potential contributions to the cultures of community technology projects. Creating a dynamic, innovative, social organization that works on developing technology appropriate for its environment is as important as its technical development. This requires discussion and engagement within a set of multiple perspectives. Community technology projects, often already outside of the business structures that require return on investment or strict hierarchical structure, might provide the potential to capitalize on these multiple perspectives.

CI organizations also must be accountable to the bodies that fund them and thus they face pressures to conform to a business orientation. Powell's research with ISF indicates that the gendered nature of technology work creates cultural structures that can more easily reinscribe difference rather than opening multiple perspectives. This is closely tied to the invisibility of capacity building work noted in the case of the WVDA. Indeed, the two cases highlighted in this paper demonstrate a devaluing of feminized labour in both a funded and non-funded CI organization. It is therefore essential for CI researchers to examine the exclusions inherent in the invisibility of the everyday (Balka 2002) when conceptualizing participation in CI initiatives and organizations.

**Acknowledgement**

The authors acknowledge the vital contributions of community partners at the WVDA and ISF, our CRACIN colleagues and SSHRC for their funding of CRACIN

**Endnotes**

1. Research for WVDA was conducted over a one-month intensive field study. Observations emerged from semi-structured interviews and insights garnered from lunch conversations, municipal council meetings, board meetings and other community interactions. A grounded theory approach was employed where research themes were based on the data (Strauss and Corbin 1998). Alongside interviewing WVDA staff and municipal councillors, snowballing methods were used to find interview participants from the broader community.
2. Broadband access is often a prerequisite for many businesses to locate in an area and was cited by one local businessperson as dramatically enhancing her ability to interface with larger markets such as Halifax, the provincial capital.
3. Inspired by the Policy Action Research (PAR) tradition, a two year research project was oriented towards providing feedback to advance social goals and organizational change. Research included observation and participation in meetings, monitoring of the group's email mailing list, supervision of an undergraduate intern, as well as participation in conference presentations.

**References**

Baines, C., P. Evans and S. Neysmith, eds. *Women's Caring: Feminist Perspectives on Social Welfare*. Toronto: McClelland & Stewart, 1991.

Balka, E. "The Invisibility of the Everyday: New Technology and Women's Work," *Sex and Money: Feminism and Political Economy in the Media*, E. Meehan and M. E. Riordan, eds. Minneapolis: University of Minnesota Press, 2002, pp. 60-74.

Bishop, A. P., I. Bazzell, B. Mehra and C. Smith. "Afya: Social and Digital Technologies that Reach across the Digital Divide," *First Monday*, 6.4 (April 2001). firstmonday.org/issues/issue6_4/bishop

Cockburn, C. *Brothers: Male Dominance and*

*Technological Change*. London: Macmillan. 1983.

_____. "Caught in the Wheels: The High Cost of Being a Female Cog in the Male Machinery of Engineering," *The Social Shaping of Technology*, 2nd ed., D. MacKenzie and J. Wajcman, eds. Philadelphia: Open University Press, 1999.

Cook, J. and M. Smith. "Beyond Formal Learning: Informal Community elearning," *Computers and Education*, 43.1-2 (2004): 35-47.

Faulkner, W. "The Technology Question in Feminism: A View from Feminist Technology Studies," *Women's Studies International Forum* (June 2000).

Gibbon, M., R. Labonte and G. Laverack. "Evaluating Community Capacity," *Health and Social Care in the Community* 10.6 (2002): 485-91.

Graham, H. "Caring: A Labour of Love," *A Labour of Love: Women, Work and Caring*, J. Finch and D. Groves, ed. London: Routledge and Paul Kegan, 1983, pp. 13-30.

Gurstein, M. *Community Informatics: Enabling Communities with Information and Communication Technologies*. Hershey, PA: IGI Global Publishing, 2000, pp. 1-32.

Hacker, S. *"Doing It the Hard Way": Investigations of Gender and Technology*. London: Unwin Hyman, 1990.

Haraway, D. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Simians, Cyborgs and Women: The Reinvention of Nature*. New York: Routledge, 1991, pp. 183-201.

Keeble, L. and B. Loader. "Community Informatics: Themes and Issues," *Community Informatics: Shaping Computer-Mediated Social Relations*. NY: Routledge, 2001, pp. 1-10.

Leavitt, J. "Where's the Gender in Community Development?" *Signs: Journal of Women in Culture and Society* 29 (2003): 207-31.

Lennie, J. "An Evaluation Capacity-Building Process for Sustainable Community IT Initiatives: Empowering and Disempowering Impacts, Evaluation," *The International Journal of Theory, Research and Practice* 11.4 (2005): 390-414.

Librarian. Personal Interview. 19 May, 2005.

McIver, W., Jr. "A Community Informatics for the Information Society," *Communicating in the Information Society*. Geneva: United Nations Research Institute for Social Development (UNRISD). 2003, pp. 33-64.

Meiners, E. and L. Fuller. "Empowering Women? Engaging a Technology Grant for Social Change," *Journal of International Women's Studies* 5.4 (2004): 1-19.

Mellstrŏm, U. *Engineering Lives: Technology, Time and Space in a Male-Centred World*. Linköping, Sweden: Linköping Studies in Art and Science, 1995.

Municipal Councillor. Personal Interview. 25 May, 2005.

Nardi, B.A. and Y. Engeström. "A Web on the Wind: The Structure of Invisible Work," *Computer Supported Cooperative Work* 8.1-2 (1999): 1-8.

O'Neil, D. "Assessing Community Informatics: A Review of Methodological Approaches for Evaluating Community Networks and Community Technology Centers," *Internet Research: Electronic Networking Applications and Policy* 12.1 (2002): 76-102.

Oudshoorn, N., E. Rommes and M. Stienstra. "Configuring the User as Everybody: Gender and Design Cultures in Information and Communication Technologies," *Science,*

*Technology, and Human Values* 29.1 (2004): 30-63.

Page, M. and A. Scott. "Change Agency and Women's Learning: New Practices in Community Informatics," *Information, Communication & Society* 4. 4 (2001): 528-59.

Stall, S., and S. Stoeckler. "Community Organizing or Organizing Community? Gender and the Crafts of Empowerment," *Gender and Society*, 12.6 (1998): 729-56.

Strauss, A. and J. Corbin. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Thousand Oaks: Sage, 1998.

Suchman, L. *Plans and Situated Actions: The Problem of Human-Machine Communication*. Cambridge: Cambridge University Press, 1987.

_____. *Agencies in Technology Design: Feminist Reconfigurations*, 2005. www.lancs.ac.uk/fss/sociology/papers Retrieved April 11, 2006

_____ and B. Jordan. "Computerization and Women's Knowledge," *Women, Work, and Computerization*, M. Tijdens, I. Jennings, Wagner and Weggelaar, eds. Amsterdam: North Holland, 1989, pp. 153-60.

Wajcman, J. *Technofeminism*. Cambridge: Polity Press, 2004.

_____. "From Women and Technology to Gendered Technoscience," *Information, Communication & Society* 10.3 (June 2007): 287-98.

Webb, S. and K. Jones. "Women Connect: Lessons from Practice," *Journal of Community Informatics.* 1.1 (2004): 89-117.

WVDA Staff Member. Personal Interview. 4 May, 2005.