

Bringing Feminist Perspectives into Community Informatics

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The Canadian Research Alliance for Community Innovation and Networking (CRACIN) is a four-year (2003-07) project funded by the Social Sciences and Humanities Research Council (SSHRC) Initiative for the New Economy. It consists of Canadian and international community informatics researchers whose goals are to review community-based information and communications technology (ICT) development in the context of Canadian government programs promoting the development and public accessibility of internet services. Starting in the mid-1990s the federal government's Connecting Canadians agenda invested millions of dollars to fund thousands of non-profit and community-based organizations to enable Canadians to communicate digitally, and to access information services and resources that strengthen participation in economic and social life; however to date there has been little assessment on these projects.

CRACIN's research goal is therefore to document and assess the development of Canadian community-oriented ICT capacity and services as they contribute to local learning, to the strengthening of relations in and between communities, and to community-focused social and economic development. The research includes a coordinated series of structured case studies of selected Canadian community networking (CN) initiatives that have received significant funding from several federal government programs, undertaken in collaboration with community partners using a participatory action research (PAR) approach. As a general theoretical framework, community informatics (CI) is the over-arching lens utilized for critical analysis (see www.cracin.ca).

As we argue in this paper, feminist perspectives can enrich CI and lend a more robust and critical analysis to how community-based organizations negotiate both internal and external organizational cultures and constraints. In fieldwork conducted in two case-site studies, the student researchers quickly saw the value and necessity of applying feminist perspectives to both an analysis of their community organization and their role as participatory action researchers. This paper thus presents an analysis of the dynamics of two CRACIN case site studies where a feminist lens yields important insights into the nature of labour within CN organizations themselves and in self-reflections on the PAR process.

Peddle analyses the Western Valley Development Agency (WVDA), the regional development body for the 'western valley' region of Nova Scotia, which included the counties of Annapolis and Digby. WVDA operated the Western Valley Community Net, which offered low-cost web hosting, mailing lists and email accounts to companies, community groups, and individuals in the region. WVDA established dozens of community internet access sites throughout the region and installed a community-owned broadband fibre-optic network to service all communities. However, despite its success, in August 2005, WVDA ceased operations. Peddle outlines how capacity building is an important element of community development and CI work that is undefined and invisible. Drawing on the case of WVDA and literature around women and leadership, she argues that this is a feminized form of labour largely ignored in CI.

Powell reflects on her role as an embedded researcher for Île Sans Fil (ISF), a group of

volunteers centered in downtown Montreal who created and continue to maintain over 100 public internet access points. One can argue that ISF is Canada's most successful community WiFi network in terms of its resiliency, its development of software that serves as a local management utility for authentication and authorization, and its 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 in her section, when women have been volunteers at ISF, their labour has been both gendered and invisible.

What is Community Informatics?

As a relatively new multidisciplinary field of academic study, community informatics (CI) is concerned with studying the enabling uses of ICTs to achieve a community's social, economic, cultural, or political goals (Gurstein 2000). CI brings together various stakeholders—community activists and groups, policymakers, users/citizens, artists, and academics. An emphasis on community is implicitly fore-grounded: community informatics “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); 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 introduces “stakeholders” into an extended approach to ICT design, development, and implementation” (Gurstein, 2000:6). CI applications include community internet access, development of community

information and service delivery, online civic participation, community economic development, and development of education/training/learning networks.

As a new field of study we argue that CI needs to further acknowledge feminist contributions in science and technology studies, and to welcome feminist interventions. CI perspectives that integrate gender into analyses of programs and policies have highlighted considering 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. The following outlines some of the salient CI literature that is explicitly feminist in orientation.

Webb and Jones (2004), in their analysis of Women Connect, a CN located in the Community Development Foundation in London UK, whose goals are to use a range of communication tools (ICTs, workshops/conferences, newsletters and networking) to strengthen the skills and development of women within their local communities, stress the value of capacity building in evaluation; has Women Connect helped their partner projects to enhance their organizational capacity, to create an online network of women's organizations, to increase women's influence over policies that affect their lives?

Also drawing from Women Connect, Page and Scott (2001) argue that sustainability of CI projects 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:

Such communities work with the realities of gendered power relations, aiming to challenge and to change them. To achieve this, quality facilitation is needed, encompassing both political and relational skills. These skills are often the province of women, and are traditionally undervalued in organizations.... now is the time to for community informatics to mainstream this 'feminist' approach, working to achieve sufficient resources to make this possible (p.550).

Bishop, Bazzell, Mehra, and Smith (2001) in their Afya participatory action research project in Illinois, designed for African American women to increase their access to quality community health information and services, stress the importance of bridging not just the technological aspects of the digital divide, but the social:

In terms of social literacy, we must learn how to read each other, how to grant respect and validity to diverse funds of knowledge and social capital. We need to be socially accessible, opening ourselves to new relationships. Social training must occur as stakeholders throughout a community model and practice a shared vision of social justice.

In order to understand barriers to use of technologies by specific users, Oudshoorn, Rommes and Stienstra (2003) 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. A focus on the gender identities of the designers and users can shed understanding on how particular products constrain specific groups of users, particularly women. By configuring the user as 'everybody' and use of the 'I-Methodology' (where designers consider themselves to be representative of the users) technologies may reach diverse users. They ground their case study in an analysis of Amsterdam's Digital Staad (DDS), identifying gaps between the rhetoric and the practice of design for democratic purposes. For instance, the placement of computers in public spaces—did this increase

access for all? Eventually DDS public terminals were removed over concerns of increased use by ‘tramps’, thus detracting from DDS’s self-image as an innovative and culturally hip system. They write:

...the design practices of DDS have been dominated by implicit representation techniques. The dominance of the I-Methodology in particular resulted in a gender script: the user who came to be incorporated into the design of DDS matched the preferences and attitudes of male rather than female users. As almost all designers were male, and technology highly competent, they made DDS into a masculine technology. In the end, the designers developed a system according to their own preferences, technical capabilities, and learning style. It will come as no surprise that the users attracted to DDS were by no means representative of the population of Amsterdam (p.44).

Rodino-Colocino (2005) in her analysis of a nonprofit community WiFi program proposal in Cincinnati, Ohio raises crucial questions about user conception and design. The project, Neighborhoodworks.net, targeted a demographic dubbed “Vanessa”. The unsuccessful 2004 grant application to the federal TOPS (Technology Opportunities Program), defunct as of the 2005 budget, described Vanessa as:

... a 27-year-old single mother with four young children, did not complete high school and has lived on public assistance all her life. She feels looked down upon in the community, doesn’t participate in community activities, school activities, or decision making forums that affect her future and her children's future. She has no vehicle and is reliant on public transportation. With four children, mobility is a challenge she just can’t handle. She can’t afford childcare, so she can’t go back to school or get a job. With her limited skills, any job she would get wouldn’t cover the bills and would require long hours of hard labor. She feels hopeless, friendless, useless, and powerless.

Through connections in the WiFi program,

Vanessa will participate in community forums online and will become more involved with her children’s education, accessing their teachers via the Internet. She will participate in online training sessions to improve her occupational skills. She’ll apply for jobs online, seek financial assistance and advice, buy discounted goods, and even access the local newspaper from her home. She’ll pay bills online. She can even earn a living via this network. She will use the ‘Ask the Doctor’ feature for non-life-threatening health-related questions, or she could

contact local emergency services for more immediate needs (TOPS grant application, 2004).

This script exaggerates the power of online activities and blithely neglects to consider how an unemployed single woman on welfare can shop online without a credit card. Rodino-Colocino astutely queries whether: “...a community wireless network help[s] Vanessa if it further tethers her to her home? Would it further isolate her from neighbors and job opportunities?” She also points out the erasure of questions of race from the public discourse, and pointedly asks, “Is Vanessa a revamped welfare queen whose race is erased?”

WVDA

For the past decade, the Western Valley Development Agency (WVDA) was considered an innovator nationally and internationally. As a core-funded community-based organization, the WVDA was active in community development, particularly with ICTs. In 2005 the organization closed because of the withdrawal of financial support by its municipal partners who provided 1/3 of their funding. As a regional development authority under the Regional Development Authority Act (RDA Act), municipal inputs into the WVDA were relatively small yet essential in relation to the core funding leveraged provincially and federally, which was supplemented by project funding from diverse programs, many of which had a CI focus such as the Community Access Program, VolNet and the Smart Community program. CI initiatives were among the organization’s greatest successes. This section outlines how the invisibility of feminized community development work relates to the closure of the WVDA. The decision to close

WVDA must not be reduced to essentializing notions of gender difference. Rather, it is important to reflect on the role of gendered forms of work in this case study.

While the WVDA had a long and strong commitment to capacity building, municipal stakeholders felt that more investment in business development and expansion would yield better results for the region. Capacity building is a central term in community development and is defined as 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, qtd in Gibbon et al., 2002, p. 485). This refocusing of priorities belies a deeper conflict around what type of work is valued, and who can perform this work, points that will be later elaborated.

The WVDA was created at a time of high unemployment and change in the region, and thus made a dedicated effort to build community resources and secure projects for the region. To better understand the needs of community members, public consultation was central. The *Vision 2000* initiative, a series of 23 meetings in fire halls, legions and community centres throughout the region in 1998-99, comprised the development agency’s largest attempt at public consultation (WVDA, 1999). Over 530 people attended these meetings, contributing their hopes for the Western Valley’s future. It can thus be argued that the WVDA was a participatory organization.

Lennie (2005) underlines the importance of participative evaluation frameworks in community development, and the necessity of iterative engagement to allow meaningful

contributions by community members. Drawing from feminist perspectives on evaluation, she argues that the *process* around participatory evaluation is extremely important. 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.

This focus on process as a vehicle for community development was a source of conflict for workers at the WVDA. Municipal partners expressed frustration with “too much capacity building” and urged the WVDA to instead focus on expanding local businesses and attracting new ones to the area. While bringing new businesses into the region was a priority for the WVDA, municipal representatives stressed that WVDA should perform its mandate with more accountability for *how* and *with whom* its time was spent. Indeed, this reflects a move away from a process-oriented approach advocated by Page and Scott (2001) to a more managerial focus on products, such as accounting for a new business or an expansion of an existing one. This focus also came at a time when large funding envelopes available through the Connecting Canadians agenda were ending.

Gender and Leadership: Capacity Building as Invisible Work

At first glance, it seems that an ideological clash over what counts as legitimate development activities was at the heart WVDA’s closure. While WVDA staff were typically heavily invested in capacity building, the municipal funders of the WVDA were increasingly concerned with bringing new businesses into the region, and focusing on the

expansion of existing businesses. Page and Scott (2001) argue that a shared vision of social justice is key in CI, and in this instance such a common vision (or at least the means to achieving it) was palpably absent.

Women played important leadership roles at the WVDA. Given the white masculinized fields of engineering and computer science (Johnson, 1993; Cockburn, 1999), the contributions of women leaders to CI trouble traditional gender roles around work (Meiners and Fuller, 2004). Analysis of gender roles in community development is scarce, reflecting a conceptual marginalisation of the role of gender in this process generally (Leavitt, 2003). The leadership at the WVDA was community-oriented and (although not explicitly) feminist, focusing on a ‘can do’ attitude towards getting things done. Leadership is instrumental in maintaining several different aspects of community-based initiatives. Metzger, Alexander, and Weiner (2005) argue that leadership positively impacts community participation by “maintaining coalition consensus on mission, vision, goals, and strategy” (p. 469).

As such, a collective vision is maintained not by *forcing* a direction in community development but rather through collaboration with community members in facilitating consensus that meaningful community development work is accomplished. This approach is closely aligned with capacity building, a leadership style considered by municipal representatives to be lacking focus (personal communication).

This criticism is problematic in the broader context of CI initiatives where outputs are often social in nature (e.g. an enhanced community capacity in effective ICT use) and thus hard to measure. Arguably, this type of work is often feminized and invisible, and as such must be considered as a gendered form of work. The feminization of capacity building is a phenomenon that has yet to be illuminated in CI literature. Indeed, the literature on caring 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 it can be argued here that much of the capacity building work done by both men and women at the WVDA falls into this category.

The municipalities attempted to rationalize community development by bringing it under more direct municipal control. This echoes a larger federal policy shift in program funding. Scott (2003) notes that there has been an increased shift federally from core-funded programs to project-based funding, with concomitant accountability measures a significant aspect of this shift. In turn, organizations must dedicate increased staff time to writing reports and engaging in activities that fit into the mandate of the project funder, which is not necessarily the mandate of the local organization. Although it is expected that relationships will be developed at the local level, at the federal level there is an obsession with measurable outputs, which do not allow for the qualitative and embodied elements of enabling community technology projects to succeed. When the formalized processes of reporting are focused on satisfying an outside funder, the invisibility of everyday capacity building work makes a difference to how an organization is perceived

locally. This move away from capacity building activities 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 1993).

The 'Next Decade' (2004) document, an outline of municipal priorities sent from the municipalities to the RDA, delineated key areas of organizational change which were indicative of a lack of trust in the RDA's activities and a desire for the WVDA to focus exclusively on core priorities rather than seeking external (often federal) project funding. The WVDA underwent a process of rationalization in reaction to the demands of municipal funders and to meet their own accountability goals. Perhaps the biggest demonstration of this was their undertaking of ISO 9001 certification, which is granted to organizations with specific reporting structures integrated into their operations. Meanwhile, WVDA staff were involved in numerous different committees and boards and justifiably felt their activities and past successes contributed meaningfully to community and economic development in the Western Valley.

The decision for local municipalities to cease funding the WVDA also centred around polarized ideological debates about community development. At one end, WVDA workers were perceived by their municipal funders as being too invested in capacity building, or the 'soft side' of local development. On the other side, municipal representatives touted the need to narrow development activities to those directly focused on building business. The soft outputs often associated with capacity building are important elements of grassroots CI, such as the training workshops offered to local

residents. But how, as community organizers and economists alike have asked, how does one measure connectivity? It is challenging on a local level to conceptualize and articulate the employment and economic impacts of enhanced access to technology, especially when these outputs are often invisible.

What is Capacity Building? Situating and Critique

Given the conflict over what counts as legitimate community development activities, it is necessary to situate the WVDA context in a broader understanding of empowerment. Critically assessing the theoretical basis of capacity building, and contextualizing and critiquing business development in the WVDA furthers reflection on the role of invisible labour in CI organizations. Capacity building is a process that leads to the empowerment of community members, and is predicated on an underlying valuation of participation. Often cited as the ‘missing link’ of program sustainability, Ottoson and Green (2005) argue that participation increases the chances that a given program will be useful in a community setting. Key influences in the empowerment paradigm include emancipatory pedagogy, feminist pedagogy, and participatory action research and focus on the community rather than the individual level.

Capacity building has been criticized for being difficult to define, operationalize and measure (Gibbon et al., 2002) and are 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 & Engeström, 1999). As such, one can understand capacity building as

a form of feminized labour that is typically undervalued and often unseen (Stall, 1998). Interviews with WVDA staff and municipal representatives acknowledged the challenge of working with ‘soft’ outputs (capacity building) and ‘hard’ results (business development). One WVDA staff member elaborated on the challenges of doing work that is not visible nor easily quantified, but still involves activities that are within the frame of 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 really, you gotta start - 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 (personal communication, 8).

Given the frustration of municipal representatives at the lack of ‘tangible’ outputs from WVDA, it is apparent that this invisibility of everyday development activities was a factor in their concerns. The organization attempted to mediate this invisibility through aggressive marketing of the Western Valley and promotion of its activities. For example, in 2004 the Intelligent Community Forum, a U.S.-based broadband expansion think tank, selected the WVDA as one of seven “Intelligent Communities” worldwide.

The determined focus on business attraction, retention and expansion was a common theme throughout interviews with municipal representatives. One municipal councillor explained his concerns with capacity building with this example:

MR2: [WVDA] have 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 (personal communication, 29).

Municipal representatives were largely unconvinced of the utility of continued efforts at capacity building and wanted to move the RDA toward business attraction and development. With a more specific focus on engagement in activities that are explicitly related to business, there became less room for broad-based CI initiatives that were a substantial part of the WVDA's mandate.

The WVDA made significant contributions to the local region through local partnerships to support community learning. For example, a partnership with the Annapolis County Libraries created an online library catalogue that significantly increased the amount of people accessing the collection (personal communication, 21). This participatory framework, focused on building capacity and soliciting community input in the Smart Community project, refutes the Industry Canada model of consulting with private industry for input on the direction of telecommunications in Canada. One community resource person (CRP) recounts her work as a member of a Smart Community advisory group at the WVDA:

CRP: 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.

KP: Right.

CRP: 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 (personal communication, 21).

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. WVDA's use of capacity building as a crucial element of community development highlights how such feminized form of labour is largely invisible and ignored in the CI context.

Gender, Difference, and Partial Perspectives in Community Technology Development

As 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. This section reflects on participatory research conducted with the community wireless networking group Île Sans Fil (ISF). ISF is a group of volunteers centered in downtown Montreal who have created and continue to maintain over 100 public internet access points. The network of access points is managed by software developed by the group's volunteers. The same software also broadcasts a unique portal page at each access point, providing the opportunity for the distribution of artistic content, news, or other information relevant to the individual

access point, or to the network as a whole. The founders of ISF explicitly aimed to connect the capacity to use the internet in a public setting with the functionalities of location-based services and the delivery of local media content. Their strategy was to convince business owners to offer free WiFi to their clients, thus building a network of access points, and to develop their own software, called WiFiDog to link these access points together (see <http://www.wifidog.org>).

When fieldwork began, these projects had just been launched. Bimonthly meetings were held at a co-op café that served beer, and attracted socially-minded ‘geeks’—people who liked, understood, and engaged with technology, and who identified this engagement as a key part of their identity. Mostly, these people were men. The first volunteers were engineers or network scientists. Not always comfortable with direct interpersonal interactions, they preferred discussing specific technical or organizational configurations. Powell, who conducted fieldwork with ISF, was accustomed to communication using narrative and direct address. Initially, this difficulty in communicating made her reconsider fieldwork at this site. Yet the chance to observe a community-based technology project was productive and understudied, so direct engagement with ISF became an integral factor of her research strategy.

Conducting this research involved a negotiation between different types of knowledge. While Powell was experienced in theorizing technology, this skill was not perceived as being useful to the group members involved in producing technology. Drawing from methodological approaches in participatory action research (PAR) (Lennie & Hearn,

2003; Pinkett, 2003), her research strategy included observation of administrative council meetings, observation of and participation in general meetings, monitoring of the group's email list, and other types of active participation. In keeping with PAR, research results were presented to group members at ISF general meetings, and reports distributed to group members. 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, Powell's activities were not considered as real contributions to their central projects—building their network, and developing their software.

Boys and Toys: Gendered Technocultures

ISF's culture is masculine. Members meet to drink beer and talk about technology. They use jargon and technical language to communicate. Knowing about technology and being able to use it to change things provides social cohesion. This knowledge and social situatedness is related to technology, and to masculinity. As Cockburn (1983), Wacjman (2004), and Faulkner (2000) 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" (p. 11). A mastery of technology is associated with a certain type of masculinity, with control and detachment. However, at ISF, technology is also fun—a leisure activity that members pursue in their spare time. The group nourishes a certain kind of masculinity that valorizes its members. This is positive for male members of ISF, but poses questions about whether such a community technology project

provides the same benefits to female members who do not conceive of their engagement with technology in the same manner. The joy that many male members draw from working with technology may exclude women who do not express their engagement with technology in the same way. As Mellström writes, “engineering practice tends to reproduce patterns of homosociality” (1995). Women are not exactly part of the club — even if they are invited with good intentions.

Gender

About 10% of ISF volunteers are women, and they have raised grant money, curated art projects at ISF hotspots, proposed usability studies, coordinated media relationships, and created marketing packages. Yet for the most part, these projects have been opaque to other volunteers, who found it difficult to reconcile them with tasks like writing code. In part, the prioritization of technical work has reflected the financial benefit of promoting the group’s software. Yet this prioritization of technical work is also linked into the gendered culture of ISF. Certain actions related to the production of technology are already gendered as male, while others are gendered as female. For example, a female ISF member who we will call Anya, a usability expert and web designer, created a new user interface for the portal page that she hoped could replace a previous interface. She presented it at several meetings, and was perpetually ignored or even dismissed. No one responded to her messages posted on the mailing list.

Paradoxically, the status of ISF as a community organization creates a more conservative design environment than that of a large company. Anya’s frustrating experience in presenting her user interface was explained by another member as being a result of “her

not getting in there and yelling to make people pay attention, but also, no one liked it.”

In order to integrate the changes to the interface that she hoped to make, she had to work outside of the group structure. Eventually her changes were accepted, but her expertise, presented differently than the expertise of male members, was not. As Oudshorn, Rommes, and Stienstra (2004) point out in their study of the Digital Staad, “love and mastery of technology over the latest technology is a major incentive for men’s involvement in design” (p. 54). Thus, negotiating this culture as a woman requires an engagement with this culture of mastery.

The modes of communication between group members are 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 would like to promote the inclusion of a more diverse group of people, but their relationship to gender is 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 now make up most of its members. This perspective is typical of what Faulkner (2000) calls the “women in technology” movement, which assigns masculine qualities to technology and poses as its central problem the *lack* of women in science and technology, instead of 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 (2005) 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 decontextualized 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 (p. 6).

"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 theoretical and philosophical position Haraway (1991) describes as "partial perspective" – the ability and necessity to see non-objectively. As she sees it, partial perspective breaks down the hegemonic, masculine myth of the objective observer, and situates 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.

Masculine Technocultures vs. Sexism? Where is the Line?

From Powell’s own partial perspective as researcher, she attempted to negotiate with ISF’s gendered environment. Sometimes these negotiations were difficult. 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 difficulties in making oneself heard and respected as a woman were compounded by the sense that members might consider it appropriate to make sexist comments in public fora.

This e-mail underlined the difficulty of embedding positive 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 us 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, women 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. The environment created at ISF, with its apparent horizontality and openness, created a social environment that made it more difficult for female members to negotiate the “extraordinary juxtapositions of positive and negative feelings about technologies” (Faulkner, 2000).

Conclusion

In this paper we have argued that gender is an important element of CI research currently under-theorized in 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 women to seamlessly become part of ‘the boys’ undermines their potential contributions to the cultures of community technology projects. Creating a dynamic, innovative, social organization that worked on developing technology appropriate for its environment is as important as technical development. This requires discussion of 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.

That granted, CI organizations also must be accountable to the bodies that fund them, and as such, 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 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.

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