

Resources in unexpected places: Social cohesion and successful community internet

Jocelyn Williams
Unitec Institute of Technology, New Zealand

Abstract: The assumption that internet access is a means of building stronger communities is commonly found in a number of sectors, such as in New Zealand government social services policy. In response to this assumption, case study research examined the experience of free home internet access among families participating in New Zealand's Computers in Homes (CIH) scheme in low socioeconomic Auckland school communities between 2003 and 2005. The goal of the study was to assess how internet access and social cohesion are related in a free home internet scheme.

Data from 22 participants at Case A and Case B over two waves of research showed internet use declined across the group as a whole. This negative overall outcome was mitigated not only by a range of positive experiences and some individual 'high-connector' internet users, but also evidence that greater social cohesion was associated with the activities and interpersonal influence of confident internet users at Case A. Here, significantly greater retention of ongoing internet use also occurred. Thus a positive relationship existed in this research between internet access and social cohesion in one case study of two, where conditions included the presence of opinion leaders and social solidarity. A key finding of the study is therefore that ongoing internet use may be more successfully embedded in a setting where social cohesion is more readily apparent at the time that a free internet scheme is implemented.

The Computers in Homes concept extends participants' social experiences of community through the way it is structured and implemented, creating opportunities for face to face social interaction and support. In combination with the mobilising behaviours of leader figures, these social experiences may be factors associated with longer term viability of a free home internet scheme as much as the presence of the internet itself. This paper responds in particular to the conference theme of 'expecting the unexpected'. Contrary to expectation, at Case A top down stakeholder dynamics and confused accountability when external agencies are involved did not appear to harm longer term project viability. This paper explores possible reasons for this contradiction.

Keywords: Internet access, social cohesion, stakeholder agendas, community internet

Introduction

This paper responds to the idea of 'expecting the unexpected' in community informatics by examining some surprising outcomes of New Zealand research on free home internet for low-income families in the Computers in Homes (CIH) scheme. These outcomes suggest a relationship between relatively well-developed social cohesion in a community setting and successful implementation of a free home internet scheme. The goal of the 2003 – 2005 study was *to assess how internet access and social cohesion are related in a free home internet scheme* in local, low decile¹ community settings. Despite a range of challenges to achieving long-term internet use in these communities and the existence of a complex set of stakeholder agendas with consequent accountability issues in one of the cases especially, certain conditions appeared to favour sustainability for the free home internet scheme in the community that on the face of it had less chance of achieving it. These conditions were stronger social cohesion that appeared to facilitate more enduring internet use at Case A; and the presence of leader figures among the adult participants at that site who mobilised to create impetus for project continuation (J. Williams, 2010).

Computers in Homes (CIH) is a free home internet scheme unique to New Zealand, although similar ones exist, such as Computers in Education (Barrera-Osorio & Linden, 2009) and Computers

¹ In New Zealand, 'low decile' generally connotes a school community of low socioeconomic status.

for Youth (Choemprayong, 2006; *Computers for youth*, 2010). CIH, launched in New Zealand with Ministry of Education funding as a pilot in 2000, is a partnership between public and private sectors to refurbish computers donated by private organisations, offer them to schools in decile 1² communities, and guide the schools in distributing them to families most in need, with training support. The CIH mission is “to provide all New Zealand families who are socially and economically disadvantaged with a computer, an internet connection, relevant training and technical support” (Computers in Homes, 2007, ‘About CIH’ page, ¶1). At the time that CIH was being launched at Case A and Case B in 2003, the scheme was relatively new in New Zealand, with these two communities in Auckland (New Zealand’s largest city) being among the first few in what had been a pilot in 2000. CIH has grown rapidly to the point where it is now established in about 200 communities throughout New Zealand.

This paper develops on the unexpected outcome of longer term sustainability for the CIH home internet scheme, and increased social cohesion at Case A. These outcomes were unexpected because of a complex set of stakeholder agendas as well as a period of potentially disruptive change at the Case A school where CIH was to be located. However social cohesion was evidently strong here from the beginning, and the structured social context afforded by Computers in Homes is likely to assist in promoting social cohesion. Evidence of social cohesion was not so apparent at Case B (based on researcher observation, as well as some quantitative data) and ongoing internet use was not as successfully achieved in this setting. Summary data on the two cases will be presented to clarify this contrast, after the origin and goal of the study are introduced and an overview of the relevant literature is set out, as follows.

Development of the study & research goal

An extended period of project development and design during 2002 – 2003, in conjunction with review of the rapidly expanding digital divide and community informatics literature, led to a focus in this study on the contested assumption that internet access is a means of building stronger communities. The mixed methods study at two sites over two cycles of research among families of primary school aged children involved in CIH was designed to document the outcomes of free internet access at home in relation to social cohesion, and thus explore what, if any, relationship exists. In this way, findings of the study were therefore intended to inform speculations about internet access and community building. Broadly, for the purposes of this study, social cohesion is understood as an outcome of group level characteristics such as social networks and support, shown in individual behaviours such as volunteering (Friedkin, 2004). It seemed likely that providing internet access would not necessarily have a direct effect on the social settings in a linear, deterministic fashion (Hargittai, 2002; Herring, 2004) despite this assumption existing at policy level (Department of Internal Affairs et al., 2002).

Assumptions about creating stronger communities through provision of home internet access are built on other assumptions. The first of these is that internet *access* implies internet *use*, and then that people who use the internet will find it becomes indispensable and thus they may increase their use over time. Therefore the present investigation was designed to explore the following propositions:

- Proposition 1 (P1): Free home internet access leads to ongoing internet use
- Proposition 2 (P2): Internet access is positively related to evidence of social cohesion.

Proposition 1

Proposition 1, “Free home internet access leads to ongoing internet use”, is based on the expectation that it is in the interests of those implementing a free home internet scheme such as CIH

² In New Zealand, “a school’s Decile indicates the extent to which it draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Decile 10 schools are the 10% of schools with the lowest proportion of these students” (Ministry of Education, 2008, ‘Deciles information’ section).

to ensure that ongoing or increasing internet use actually occurs, to maximise anticipated community benefits. Therefore evidence of increased use would arguably provide an encouraging foundation for further community building objectives. Evidence tracing internet use was sought through surveying the extent to which volunteer participants became regular internet users across a number of dimensions in the initial research period and then again a year later. Eight survey items³ are altogether designed to provide a measure – an Internet Connectedness Index or ICI - of an individual's relationship with the internet (as distinct from an hours of use approach) generating a "...qualitative conceptualization ... taking into consideration the breadth, depth, and the importance of individuals' internet experience" (J.-Y. Jung, Kim, Lin, & Cheong, 2005, p. 64). As will be illustrated later in this article, survey data showed internet use declined across the whole sample (comprised of individuals from both cases) while it persisted more noticeably at Case A.

Proposition 2

Proposition 2, "Internet access is positively related to evidence of social cohesion", captures the belief that internet access for all families is critical for building stronger communities. This belief is embedded in CIH communications (*Computers in Homes* 2007) as well as the government's social policy agenda which has pointed in this direction for a number of years (Department of Internal Affairs et al., 2002). Similar views about technology access are found elsewhere in international social policy literature (National Telecommunications and Information Administration, 2000) where "being digitally connected becomes ever more critical to ...community participation" (ibid., Executive Summary), in media reports (Twist, 2005) as well as academic studies (Haythornthwaite, 2005). Other research (Pigg & Crank, 2004; Quan-Haase, Wellman, Witte, & Hampton, 2002; Toyama, 2007; D. Williams, 2006) suggests there may be substance to this assumption. The present study sought evidence of social cohesion principally through qualitative means, working from a detailed framework that addressed social cohesion at both individual and group levels. Ultimately a relationship seemed apparent between more lasting uptake of internet use at Case A, and more evidence of social cohesion there.

Methodology

While Case A and Case B were neighbourhood based study sites, the research focused on selected families within them whose children were attending the local primary school and who were all involved in the CIH scheme. Participants in the research were volunteers from lists of families, supplied by school staff, who had recently been recruited to CIH. In-depth interviews including open-ended as well as survey questions generated participant anecdotes, quantitative survey data and researcher observation over two cycles of research with the same groups. While thirty adult CIH family members in total were involved in the study from beginning to end, data from a total of 22 participants (nine at Case A and thirteen at Case B) are addressed in the discussion of results. The reasons for this include: participants 27 – 30 were involved only at Time 2 of the study; data from participants 2, 7 and 11 were incomplete; and participant 26 was from another school community. Because a case study approach was taken with a focus on Case A and Case B, participant 26 was therefore disregarded for the purposes of analysis. Thus data from eight of 30 participants were not included. Additional data from observation, interviews and meetings with school principals and key informants provided rich contextual detail.

By Time 2, about one year after Time 1, nine of the original total group of 22 (seven from Case A and two from Case B) remained involved in the research. As in a more recent study of computers in education in Columbia (Barrera-Osorio & Linden, 2009) where an attrition rate of 37% over two phases of research was attributed to "high rates of migration" (ibid., p. 9), a major contributing factor to the sample attrition in the present research was household transience.

³ The items used to generate an Internet Connectedness Index were: evaluation of the internet; how much would one miss the computer and internet when absent; time spent online; history of home computer use; time spent on online activities; scope of goals in internet use; scope of online activities, scope of places of internet use.

Literature

Social cohesion in the research design

A tension between optimistic and pessimistic views of the relationship between the internet and society was fuelled in the early 2000s by the views of Professor of Public Policy at Harvard University, Robert Putnam, best known for his ground-breaking analysis on declining social capital which enjoyed a period of high exposure from the late 1990s (1996, 2000, 2002). Putnam defined social capital as “features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue shared objectives” (Putnam, 1996, ¶2), arguing that social capital had collapsed in the US (2000, 2002) based on statistics showing a dramatic decline in the numbers of people involved in clubs, churches, sports groups and the like. This view gained traction, especially in political circles where it became a “policy panacea” (Fine, 2001, p. 191) because arguably “it explains what is otherwise inexplicable” (ibid.) about post-modern social change. Over recent years Putnam has continued to refine his thinking on the role of social capital in society, explaining it in this way:

The central premise of social capital is that social networks have value. Social capital refers to the collective value of all "social networks" [who people know] and the inclinations that arise from these networks to do things for each other ["norms of reciprocity"]. (The Saguaro Seminar, 2007, 'About social capital' section)

Now he prefers “a ‘lean and mean’ definition: social networks and the associated norms of reciprocity and trustworthiness” (Putnam, 2007, p. 137). Social capital is thus the value derived from social ties: out of our social relationships comes the impetus to do things for one another (ibid.). This impetus is a resource, generally understood to be like financial capital, in that a community needs to use it in order to grow more of it (D. Williams, 2006). An apparent deficit of social capital, called a “crisis in social cohesion” (Forrest & Kearns, 2001, p. 2126) has been a strong theme in the literature on community. Building on the ideas of Coleman (1988) who identifies three types of capital – physical, human and social – and views social capital as a resource that can be “mobilized for collective action” (Pigg & Crank, 2004, p. 60), Onyx and Bullen (2000) consider social capital has five dimensions: networks, reciprocity, trust, shared norms and social agency. Williams (2006) has referred to “confusion in the literature about whether social capital is a cause or an effect”; however some support is found for the idea that to generate social capital you have to have some to start with (ibid., ‘What is social capital?’ section).

This idea that social capital is a necessary building block of social action (Pigg & Crank, 2004) has become orthodox. Putnam’s focus is on the importance of associational activity for participation and democracy, and his approach is to view social capital as being both the social networks themselves, and the positive outcomes of these (D. Williams, 2006), whereas other researchers understand it to be either the networks or the outcomes (ibid., p. 2). In this sense, social capital has two levels – one perspective stresses the way individuals can leverage networks for their own advantage such as in deriving social support for themselves (Wellman & Berkowitz, 1988), while another perspective is to view social capital as a collective asset that improves social outcomes at a community level (Ferlander, 2003). If Putnam is right about the breakdown of support networks in society it may be that the qualities of strong community are latent and therefore need to be actively fostered through harnessing a group’s impetus to operate collectively. This principle is highlighted through the evidence from Case A assembled in this paper.

While an ideal of strong community is sometimes alluded to in a goal of *community cohesion* in the literature (Vergunst, 2006), with cohesion “address[ing] the characteristics (and the strength in particular) of the bonds between the individuals who constitute that collectivity or group” (ibid., p. 1), the term *social cohesion* (Das, 2005; Forrest & Kearns, 2001; Friedkin, 2004) is more often used. The literature on cohesion features an emphasis on the ability of a cohesive group to mobilise toward a collective goal. A focus on collective action “historically ...enabled citizens to efficiently pursue common goals, often creating community wide gains” (Shah & Scheufele, 2006, p. 2) in a socially

cohesive setting. Collective action as a characteristic of cohesion is also highlighted by Friedkin (2004):

The members of a highly cohesive group, in contrast to one with a low level of cohesiveness, are more concerned with their membership and are therefore more strongly motivated to contribute to the group's welfare, to advance its objectives, and to participate in its activities. (Cartwright, 1968, cited in Friedkin, 2004, p. 412).

New Zealand government policy asserts that social cohesion is evident where people feel a part of society; relationships are strong; differences are respected; people feel safe and supported by others (Statistics New Zealand, 2006); and they feel a sense of belonging, identity, and willingness to commit to shared tasks. Forrest and Kearns propose a structured model of social cohesion incorporating five elements (Forrest & Kearns, 2001; 2000), of which social capital is one – in this sense, social capital is indicative of social cohesion. Their model includes: common values and a civic culture; social order and social control; social solidarity and reductions in wealth disparities; social networks and social capital; and territorial belonging and identity (Kearns & Forrest, 2000, p. 996). Thus they locate social capital as a characteristic or outcome of social cohesion. In turn, where “a cohesive society is one in which dilemmas and problems can be easily solved by collective action” (Kearns & Forrest, 2000, p. 1000), social cohesion is more likely to occur if social capital exists along with civic engagement, expressed through associational activity in neighbourhood and community organisations (ibid.). This principle, highlighting the importance of *existing relationships and networks* to “sustain the expectations, norms and trust which facilitate such solutions” (ibid., p. 1000) is one that underpins the research design for the present study.

Spoonley and colleagues (2005) cite a Canadian definition of a socially cohesive society as “one where all groups have a sense of belonging, participation, inclusion, recognition and legitimacy” (Jenson, 1998, in Spoonley et al, 2005, p. 88) and suggest that social cohesion is “interactive” (ibid., p. 88). By inference, it must therefore inhere in networks of relationships. Additionally, the degree of cohesiveness in a group contributes to social influence: “in cohesive groups, conformity pressures are greater because individuals value the opinion of other group members” (Vishwanath, 2006a, p. 327) and hence “in such groups, individual internal attitudes and beliefs converge with that of the group” (ibid.). Thus interpersonal influence plays a vital role in social cohesion.

The design of the CIH study, concerning the relationship between internet access and social cohesion, addressed both individual and group level characteristics of social cohesion drawn from a literature review, at the same time as assessing the extent and longevity of individuals' internet use. At the individual level, social connectedness (such as frequency of contact with friends and family), inclusion (for example, people feel they belong), support (such as networks of neighbours known by name), and place attachment (such as intention to stay in the neighbourhood) were documented through interview and survey responses over the two waves of research in both cases. At the group level, networks of mutual support (evidenced for example in patterns of visiting and phoning others), social capital (such as levels of associational and volunteer activity), and social solidarity (evident in a group that is able to mobilise towards a collective goal) were documented and analysed.

New Zealand's Digital Strategy

Justifications for community internet initiatives are often linked to a belief that they will generate economic capital – “ensur[ing] we use digital technology to increase productivity across our economy” (New Zealand Government - Ministry of Communications and Information Technology, 2008, 'High-value economy' section). Various strategies over recent years in New Zealand have emphasised making the internet accessible to as many people as possible through an overarching Digital Strategy that originated in the early 2000s with the realisation that

Groups most likely to be disadvantaged ... are: Māori and Pacific Island peoples, those on low incomes, sole parents, older people, people with low or no qualifications or poor literacy, the unemployed or underemployed, people in areas lacking a sound telecommunications structure such as rural areas, women and girls, and people with disabilities. (Maharey & Swain, 2000, ¶4).

The New Zealand government's response to its digital divide at this time was to view it as a problem of household access, stating "policy possibilities that could be investigated to overcome financial barriers to access [include] providing in-home access to low-income families ... the Ministry of Education has contributed to a Computers in Homes pilot project already" (Maharey & Swain, 2000, ¶145). Yet although the government acknowledged "there are actually several dimensions to the digital divide, all of which need to be considered in developing policy that is going to close the divide..." (Maharey & Swain, 2000, 'Summary of existing information' section, ¶5) the Digital Strategy policy document that appeared in 2005 came to focus on internet access.

Aiming to coordinate a range of digital divide-related policies, the government developed a draft Digital Strategy (Ministry of Economic Development et al., 2004) after a consultation process. This draft policy envisioned universal access to the benefits of "the power of ICT to harness information for social and economic gain" (ibid., Foreword, p. iii) over the following several years. Within this broad, pan-ministry Digital Strategy, a number of small-scale schemes intended to close New Zealand's digital divide were endorsed, with government-funded initiatives such as CIH being viewed as a means to "seize the opportunities for increased prosperity and *greater social cohesion*⁴ that the effective use of the tools of ICT can deliver" (Ministry of Economic Development et al., 2004, Foreword). A clear assumption here is that social cohesion is an outcome of ICT access, a technologically determinist belief in which "societal effects [are] attributed to intrinsic features of technology" (McQuail, 1994, p. 87). Thus universal internet access became a policy and strategy priority for the New Zealand government between 2000 and 2005, and positive social outcomes of internet access such as social cohesion appear to be not only implied but assumed and declared.

Stakeholder agendas in community internet

Given a governmental commitment to universal internet access as a tactic in lifting educational achievement and economic performance, an efficient way must be found to resource it, other than government funding alone. The shift toward a partnership approach to community internet as in the Digital Strategy explained above shows an expectation that a range of stakeholders should be involved in supporting it. The partnership approach recognises that community members should at the very least be involved in, if not driving, solutions to the social and economic problems affecting them. This principle arguably explains the New Zealand government's enthusiasm for CIH, as it is designed to devolve responsibility to the community itself.

Gaved and Anderson (2006) argue that control and ownership may be exerted by a range of agencies which may include

the host community ... endogenous or grass roots initiatives; a partnership of stakeholding organisations; [or] an external body ... what we term exogenous initiatives. (ibid., p. 6)

However the stakeholder context at Case A⁵ was complex. In an unusual scenario, until 2004 Case A existed as two separate schools (one junior, one senior) on one site in a relatively new suburb in the Manukau district of the Auckland metropolitan area. Part way through the period of the research, at the end of 2003, these two schools divided into two separate sites⁶ a few streets apart. Thus a time of major change and dislocation was one important feature of the Case A setting, with school management splitting off into two separate school entities.

⁴ My emphasis added

⁵ Meanwhile, CIH was being launched for the first time at Case B at about the same time as at Case A in October 2003. Located in a suburb with a population of 40,000 on the southernmost, semi-rural fringes of the greater Auckland area, Case B contended with different challenges including a high proportion of Māori and Pacific Island pupils. Both Case A and Case B school communities featured a high level of domestic transience, which has implications for retaining families in a scheme like CIH. This paper focuses on Case A where the unexpected outcomes were evident.

⁶ For research purposes, the families originally recruited to the study continued to constitute "Case A" as they remained a social network who still maintained their identity within the local neighbourhood.

Accountability issues were exacerbated at Case A by the fact that CIH was one of a raft of schemes being offered under the aegis of the Housing New Zealand Corporation (HNZC) Community Renewal project at that time. Therefore responsibility for implementation and long term continuity were blurred both by the Case A school restructure and HNZC's desire, expressed by the HNZC Community Renewal Project Manager, to use CIH as part of a strategy aimed at overcoming neighbourhood social exclusion. Into this mix came CIH, aiming to see the scheme established among twenty-five families in the Case A community. Further, the project champion (a key administrative role in CIH) was the secretary of the local Residents' Group, which had an office in the HNZC Information Centre. The first meeting to plan the setting up of Computers in Homes at Case A was held there in mid 2003, attended by representatives of all interest groups: the two school co-principals, the Residents' Group, HNZC, CIH, and parents. Thus it may be inferred that CIH intended that the schools, CIH and HNZC would work collaboratively. This research site had a complex social ecology including school politics, educational priorities, CIH goals, and government agency (HNZC) interests; and the weight of 'agendas' was tilted more towards the exogenous, or external, and top-down. By contrast, stakeholder relationships were much more straightforward at Case B, where no such external agencies were involved. A relatively simple context there involved a motivated school principal working directly with the CIH National Coordinator; yet this arrangement is arguably also exogenous, even if less complex than Case A.

The differing perspectives and agendas of exogenous and endogenous groups will have a range of effects on project success and sustainability, so that project ownership can be blurred (Gaved & Anderson, 2006). Subsequent events suggest such an outcome occurred at Case A. CIH prefers the school to 'own' and manage the scheme; yet here, HNZC drove the implementation, with one result being that 'the school' stepped back. By June 2005 at a Case A 'rejuvenation meeting' as the research came to a close, parents and school staff reflected on the 2003 implementation period as confusing and disempowering. It was evident parents felt CIH was poorly implemented; training for parents was described as ad hoc and inadequate; tensions arose relating to personnel and responsibilities. Ultimately, HNZC withdrew its services as provider of CIH, relinquishing responsibility to the schools during 2004. The 2004-2005 period saw what was said to be much confusion over records, names of families involved, numbers of computers in circulation, and other administrative matters. This is one operational consequence of blurred ownership.

Results

In terms of the research goal, *to assess how internet access and social cohesion are related in a free home internet scheme*, and the purpose of this paper which is to illustrate an unexpected outcome of the study where one of the study settings showed markedly greater success in embedding internet use as well as an apparent increase in social cohesion, an overview of relevant results is now presented. First, for measurement of internet use (see 'Proposition1' earlier in this article), results at Time 2 for the nine remaining participants across both Case A and Case B show the following:

Code # Case A or B	Index 1 – 12 Time 1	High- or low-connector	Index 1 – 12 Time 2	Change
1 (A)	7.66	high	6.69	Decreased
3 (A)	6.25		7.30	Increased
4 (A)	5.27		3.67	Decreased
6 (A)	7.41	high	6.0	Decreased
8 (A)	5.96		5.66	Decreased

Code # Case A or B	Index 1 – 12 Time 1	High- or low-connector	Index 1 – 12 Time 2	Change
9 (A)	5.75		6.38	Increased
13 (B)	5.93		7.68	Increased
24 (B)	4.71	low	4.18	Decreased
25 (A)	8.99	high	8.96	Static

Table 1: Internet Connectedness Time 1 to Time 2

Three trends can be observed in these data. First, a range of experiences is captured here in a reduced form: from the highly-connected individual who remained enthusiastic (**A25**), to the highly connected whose use fell away (**A1, A6**), to the low-end user who evidently became more interested (**B13, A9**) and so on. Second, however, for the whole group a slight decrease in internet engagement is seen. Third, the majority of those who remained actively involved in using the internet at Time 2 were from Case A. This may be coincidental, or may be related to shared motivation or a sense of belonging to a committed group.

Secondly for the purposes of this article, the overall results in relation to social cohesion are presented. The framework of social cohesion indicated in the first column is derived from an extensive review of the social cohesion literature; from many definitions and analyses, the eight characteristics were operationalised in a variety of data collection methods, principally in depth interviews and researcher observation (J. Williams, 2009, p. 114 - 118):

INDIVIDUAL LEVEL BEHAVIOURS	CASE A	CASE B
Social connectedness: <ul style="list-style-type: none"> - unpaid work outside the home - household access to telecommunications (<i>NB: all households in this study had internet access provided</i>) - frequency of interaction with family/whanau and friends 	Strong evidence of unpaid work outside home; Internet uptake more successful initially and retained by many more families; One half felt more connected with family & friends after internet provided	Most parents not engaged in unpaid work outside home; More internet “low-connectors” here; One third felt more connected with family & friends after internet provided
Routine day to day life	Observation of proactive individuals who exerted agency	Observation of more passive individuals
Inclusion	More evidence of positive neighbourly attitudes apparent	Evidence included being more private, showing disinterest or suspicion
Support	Stronger neighbourhood networks comprised of greater numbers, such as known neighbours. Trust and life satisfaction was	Fewer neighbours known; more insular, managing by themselves; sense of distrust of others, or lack of interest.

	higher.	
Place attachment and identity	More permanency (home ownership), attachment (pride in neighbourhood), willingness to commit to shared tasks.	More renters; similar levels of pride and interest in neighbours; for no apparent reason, little evident interest in being part of a group – more separate.
GROUP LEVEL CONDITIONS & OUTCOMES	CASE A	CASE B
Networks of mutual support	Stronger evidence over time: closer relationships, trust between individuals who knew one another well	Ties were present but less of an observed sense of familiar and close relationships with one another
Social capital	Much stronger evidence in individuals making active efforts to volunteer in a range of ways	Less involvement in community action; less 'networked' as a group
Social solidarity	Evidence more apparent of collective action through parent / school / neighbourhood networks	Computers in Homes initiative carried by one person (school principal).

Table 2: Summary of results for social cohesion at Case A and Case B

Unexpected outcomes in the Computers in Homes study

Surprisingly, although Case A was characterised by a complex fusion of stakeholder agendas that might be expected to spell trouble for sustainable community internet, the strongest evidence was present here at the conclusion of the study that the CIH scheme had a strong future, with the greatest retention of internet use at home, and increased social solidarity. In brief, on the basis of an Internet Connectedness Index⁷ (ICI) modelled on a measure developed in the US in a study of urban community and technology use (J. Jung, Qiu, & Kim, 2001), at Time 1 in the CIH research, a variety of ratings (from low to high-connectors) were generated for 8 individuals at Case A and 12 at Case B for whom data were complete. By Time 2 about one year later, seven of nine remaining participants were from Case A, and two from Case B (J. Williams, 2009), and those who continued to rate as high-connectors tended to be from Case A. How might these positive outcomes at Case A be explained?

It is my contention that Case A represented a more resilient social context into which the CIH free home internet scheme was introduced, and the remainder of the paper develops on the evidence for this. Broadly, the stronger social context was evidenced in larger social networks, more of a sense of support and belonging, and the presence of a core group of individuals who were leaders as well as

⁷ The ICI in the CIH study is a value from 0 – 12 of the extent to which a person uses the internet, including: the range of activities regularly performed; the range of a person's internet goals; their hours of use; their self-rated perception of internet dependency, and others. (J. Williams, 2009). This rating is generated by aggregating numerical values from 8 items through standardising and averaging (ibid., p. 125).

being “high-connector” internet users (J. Williams, 2010). This group of five individuals mobilised at the end of the study in 2005 to ensure that the benefits of CIH they had enjoyed could be carried forward for other, new families. The considerable literature about ambiguity in technology adoption, leader figures who exert interpersonal influence in a “two-step flow” model of diffusion of innovations, and the ways in which this phenomenon is borne out by the results seen in Case A in this research, is reviewed separately (Williams, 2010). Briefly, the high-connector leaders (J. Williams, 2009, p. 148) shared features of confidence, sociability, and enthusiasm for internet use as an additional media tool which was managed strategically for what it could add to the life of the household. This ready ability to manage the medium for what it could offer may have helped them to also build on their social connectedness, a feature of social cohesion. A meta-analysis of community internet research argues that “those who are socially content, trust others, have lots of people to draw on for support and believe that others are generally fair, are also more likely to be wired” (Loader & Keeble, 2004, p. 29). Results of the present study suggest that those individuals in a group setting showing high levels of engagement, high sociability and trust, who also tend to be internet high-connectors may function as opinion leaders among those who are tentative about an equivocal, though compelling, technology (Vishwanath, 2006b). At Case A, these individuals tended to mentor others.

Social dimension of the study

Case A showed stronger evidence of social cohesion in most dimensions. While there is no obvious explanation for this, on the whole, Case A participants were more engaged in community life than Case B participants, such as being involved in school events and committees, and over the course of the study Case A parents continued to be the sorts of people who spoke up at meetings, showed confidence and sociable tendencies. They knew many more neighbours on average than the research participants in Case B did, and were more positively inclined towards them, also feeling more comfortable about asking neighbours for help. In these respects, the Case A group was more noticeably cohesive. It was also marked by more permanency and belonging, with more of the families owning their own home and intending to live there for the foreseeable future. In these ways, Case A was distinguished by a sense of place, evident in the neighbourhood networks focusing on the school, the connections between parents helping one another out, and the sense of community identity. In general these features underscored the importance of the real, face to face world and the quality of social solidarity for supporting the process of getting families online and keeping them online.

Not only did social cohesion appear more evident at Case A at the start of the study, but also increased social cohesion at the conclusion of the research was related to more successful uptake of the internet at home. How may we explain this outcome? At Case A where CIH participants themselves became actively involved in running the scheme, it seems hardly coincidental that it became more successful in the long term. Despite a variety of factors that worked against CIH achieving longevity at this site, in particular systemic issues (the school restructure) and accountability issues (because of a range of stakeholders being involved) a striking outcome of this study was that the Case A community of parents took matters into their own hands. At Case A, shared commitment was very evident among parents by mid 2005 as the research came to an end, but had been incipient since the first interviews I completed with them in 2003 - 2004. After the current research was completed, these parents continued to actively manage CIH in 2006 and beyond, by training parents new to the scheme, and administering it themselves at the two school sites, according to the CIH national coordinator (Personal communication, 23 November 2008). The 2004-2005 period at Case A was characterised by confusion over records, which families were involved, numbers of computers in circulation, and other administrative matters. Yet by 2005, sufficient commitment to the value of CIH had re-emerged among the original parents that a group collectively took ownership of the scheme, and this provided momentum for it to continue. Grassroots participation had begun to drive the scheme in the way predicted by Gaved and Anderson (2006) in their hypothesis that endogenous ownership of community ICT is more likely to lead to sustainability. CIH continues to thrive at this site. At Case B, CIH is handled differently: the principal carries the impetus and responsibility entirely by himself, training five families at a time. As is to be expected, in different community contexts different processes will be effective. Arguably, evidence of collective action was

more apparent in Case A because of the chance factor of a group of strong characters, who could be characterised as opinion leaders, being involved.

Friedkin (2004) argues that cohesive group conditions are the antecedent of individual behaviours. In Case A, this process can be seen occurring, with cohesive conditions being present already in spite of turmoil at the school and confused accountability for CIH, and in turn, the individual behaviours serve to reinforce the group level conditions. Friedkin (*ibid.*) suggests cohesion is present when group level conditions and outcomes (such as a propensity towards collective action) are evident, and that this must be present before more individual level behaviours associated with cohesion (such as volunteering) can be increased. Case A showed a good 'fit' with this model. More active networks, more social capital, more civic engagement were present at Case A than Case B, as well as the belonging aspect indicated by home ownership and other features of pride and satisfaction in living in the area. In turn, uptake of the internet was more successful at Case A, with "high-connector" parents being proportionately more numerous here (while at Case B there were no "high-connectors", and all of the "low-connectors" came from here), but also after one year, the internet was retained by many more families in Case A than in Case B. At the end of the study in 2005, the remaining Case A parents who were still involved with CIH were taking initiatives to drive the project forward and, later, trained new parents, among other proactive tasks.

A final point is that CIH has a participatory culture emphasising parent involvement and the social context of technology use. As part of CIH culture and practice, selected parents are encouraged to mentor others who lack confidence. Training sessions facilitate social engagement, as do the regular meetings for CIH families that are planned and facilitated by school staff. Usually held in either the staffroom or the school library, parents socialise, hear a guest speaker or see awards presented, talk about computer problems or achievements, share supper and in these ways feel part of a supportive group. By encouraging families to meet at the school in the library or staffroom, school staff aim to break down perceived barriers between home and school (Perry, 2004; J. Williams, 2009) and to extend participants' social experiences of community, and technology. This social dimension of the scheme reflects an understanding that knowledge is socially constructed, in collaboration with those we know in social settings, as "we do not construct our interpretations in isolation but against a backdrop of shared understandings, practices...[and] language" (Denzin & Lincoln, 2000, p. 197).

As mentioned above, Case A featured markedly more successful uptake of internet use - despite the school restructure and the involvement of another agency (see the "stakeholder agendas..." section earlier in the article) in the implementation of CIH - than Case B, and demonstrated stronger social cohesion at the group level: opinion leaders, strong family and group networks, pride and belonging, and active volunteering, and the beginnings of commitment to a shared goal. This process became evident over time, and arose in tandem with the CIH mode of practice based on social interaction, rather than because of internet access and use per se.

Conclusions

Returning to a key theme introduced early in this article, "endogenous" community internet initiatives (Gaved & Anderson, 2006, p. 6) are likely to be more sustainable (Williamson, 2003) because the endogenous perspective addresses the digital divide as one component in a range of community issues. For example Eubanks (2007) and her research subjects, who she calls her "collaborators", believes the digital divide must be "re-imagined and renamed" as a "people divide [because] participation, action, and collaboration is the only route to the openness and respect that makes communication across difference possible" ('Alternative articulations' section). Community members themselves are able to make use of digital tools not only for achieving educational and economic parity with the mainstream, but also to determine content and representation of their views and local issues.

A top-down view of community internet tends to take a deficit orientation in which the digital divide is an access or commodity problem, but it may overlook the ability of the community to mobilise and find its own solutions. Sustainability is an issue for investigation in community internet research worldwide (Loader & Keeble, 2004) because although large numbers of such schemes exist,

continuity is generally problematic because of factors including transient populations, conflict over accountability, and the tendency for these schemes to be ‘outside in’ solutions imposed by well-meaning agencies. Further, McKnight and Kretzmann (1996) refer to “traditional needs-oriented solutions” (p. 1) that focus on deficiencies in the community with the result that

Many low-income urban neighbourhoods are now environments of service where behaviours are affected because residents come to believe that their well-being depends upon being a client. They see themselves as people with special needs to be met by outsiders. (McKnight & Kretzmann, 1996, p.1)

A consequence of this may be that disempowerment is heightened while a sense of agency is lost among those targeted by outside interventions. Conditions cited above (McKnight & Kretzmann, 1996) were arguably present at Case A, where a variety of external agencies were busily providing solutions and, arguably, focusing on deficiencies. Yet it was at this site that greatest success and retention of CIH home internet was experienced. These outcomes suggest highly useful leads for further investigation, and enhanced policy and practice in community internet. What factors may account for greater success with CIH at Case A, and less so at Case B?

Further research is needed to clarify the reasons for different outcomes such as were found in this study, and also to assess the role played by the CIH culture of socialisation practices. The scheme places a great deal of emphasis on meeting the social needs of parents and children, for example by providing a structure of low-key meetings and training sessions so that the less confident are encouraged to find support from peers in a collective setting. This aspect is a given in all CIH communities. Yet the Case A setting arguably fostered more positive internet attitudes and behaviours among the researched group, seen for example in evidence of effective peer mentoring, and the mobilising behaviours of a group of motivated parents who were looked up to by others, to keep the scheme going beyond Time 2 of the research. Further, the neighbourhood setting at Case A was characterised by several features of social cohesion such as supportive social networks that, according to Hampton (2002) “encourage[s] place-based community” (p. 230).

The study signals the critical importance of recognising and harnessing social resources – such as support networks, and influential leader/mentor figures - that may not be overtly apparent in disadvantaged urban community settings. These resources may be overlooked because they tend to be viewed more in terms of deficits (Forrest & Kearns, 2001, p. 2141) in a “deficiency-oriented social service model” (McKnight & Kretzmann, 1996, p.1) in which communities are “noted for their deficiencies and needs” (ibid.) and therefore are seen to lack certain resources or exhibit less robust processes rather than actually having assets. However it is worth noting that ‘systemic’ issues relating to tensions over agendas and accountability for community internet are not necessarily fatal when the social resources are strong enough at community level to override the difficulties. With the odds arguably stacked against successful community internet in the research settings in this study, promising signals were present at Case A about what is required to foster improved community internet longevity.

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