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### **Research Problem:**

***How do we measure if closing the Digital Divide addresses barriers to social inclusion? What are the implications for the Computers In Homes Programme in New Zealand?***

### **CHAPTER ONE – INTRODUCTION**

The premise that providing computer hardware to the 'have-nots', to make their ICT ownership equal to that of the "haves", will remove discrepancies in educational and economic outcomes is currently under scrutiny. There has been another assumption that computer ownership and Internet usage will naturally follow the universal uptake patterns of radio, telephone and television, but apparently other issues of access and opportunity forestall this. More important than material ownership alone, is how the absence of social capital in the first place inhibits people's progress toward social inclusion in the digital world.

On one hand, social capital comprises the social networks that help society function effectively, but also to be considered are the benefits of effective participation in society attained via participation in ICT. These include the self-confidence to enter various situations and halls of learning many of us take for granted; the self-esteem necessary to proceed when progress seems blocked; and a belief that the knowledge and culture we hold is a valuable commodity in itself (Spellerberg 2001; Warschauer 2003).

Numerous government, business and community initiatives around the world have attempted to provide solutions to the disparities that exist between those who have access to ICT and the Internet, and those who do not, and to measure the effectiveness of these programmes. However, it is apparent that conclusive measurement of the social outcomes in empirical terms is difficult. Loader and Kebble (2004:1) note:

*'Good quality research exists, but the extent and robustness of current empirical research in community informatics is not sufficient to help policy-makers and practitioners to design and implement effective strategies and actions'*

New Zealand is no exception, so this research paper will explore various ways community ICT initiatives have been implemented and measured internationally and assess which could apply to the local situation. Specifically, the study will examine their relevance to the Computers In Homes programme<sup>1</sup>, its qualitative findings to date and its current evaluation survey for projects from 2000 to 2005.

### **Access to ICT: Implications for Social Inclusion**

One of the first issues of access is opportunity. Computer and Internet access is stratified by race, income and education, implying social capital is an important factor in gaining access to ICT. For people whose social networks do not include computer users, the challenges of getting started can be overwhelming. Groups with lower incomes and education also have lower assets and savings, lower literacy rates, and fewer personal connections with others who know how to use computers. But social inclusion via access to ICT cannot rest on providing devices and conduits alone: it must develop resources that enhance the social, economic and political power of the targeted clients and community. We need to investigate both, how social capital provides

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<sup>1</sup> Computers In Homes is an initiative of the 2020 Communications Trust, which aims to provide recycled computers, Internet access and training to families in low-income communities in NZ, with a view to improving educational outcomes.

support for using the Internet and how using the Internet in turn extends people's social capital and promotes social inclusion (Warschauer 2003). Himona (2003) claims that in New Zealand digital divide efforts have been aimed at enlarging the pool of receptive users of existing Internet content, rather than helping people become active creators of and participants in their own local content. Guild (2004) adds that large groups of Pasifika people in NZ keep in touch with events back home via indigenous content produced within the Pacific region, especially the news, portal and directory sites. Pasifika and refugee CIH families also report favouring these sorts of portals.<sup>2</sup>

Presuming that social capital is what people already possess and bring with them; that social inclusion is how they are brought more in line with mainstream advantages and outcomes; and social cohesion is the overall community wellbeing and interaction benefiting all sectors of society, let us examine how various authorities on social policy define and respond to these.

Spoonley (et al 2005) examines international definitions and finds there is no agreement, but suggests a useful one as '*a socially cohesive society is one where all groups have a sense of belonging, participation, inclusion, recognition and legitimacy*'. He finds the OECD has the narrowest definition of social cohesion, focusing almost exclusively on the economic and material aspects of the concept, while Canadian policy aligns it with shared citizenship, and the European Union model of society embodies universal systems of social protection. He quotes:

*'In parallel with the Canadian perspective, however, there has been a tendency to use social capital as either equivalent to, or as a subset of, social cohesion. As the European System of Social Indicators argues...social cohesion is based on social capital...which is also created by social relations and ties established, maintained and experienced by individuals.'* (Berg & Schmitt 2000:7 in Spoonley et al 2005),

and adds at a governmental level this can lead to a rights-deficit model and an emphasis on cohesion in the face of economic and social threats created by exclusion, e.g. unemployment, poverty and income inequality; deterioration of environment and quality of life, as well as social exclusion from the Information Society. Whilst Spoonley is specifically exploring the inclusion of migrants into mainstream NZ society, his comments are applicable across any excluded or disadvantaged community. He concludes that social cohesion produces shared values that reduce disparities in wealth and engage people in common enterprise and membership. He says the policy implications of this perspective relate to the quality of civic participation, the accessibility of infrastructure and services to all, and the importance of economic engagement in the labour market.

Geographical and economic factors within countries also determine who has access to Internet services. Warschauer (2004) cites international studies (Robinson & Crenshaw 2000), which agree that countries with more telephone lines per 1000 people tend to have greater Internet access. Guild (2004) argues that Pacific Island countries face extremes in high costs, vast distances and small scales, resulting in connectivity being more expensive there than anywhere else, especially in light of the average income. He also identifies the Rural/Urban divide of 3/100 homes with telephone connections compared with 70/100, with <25% of people accessing the Internet and then only via work or school, not home.

This is borne out in remote areas of NZ where it can cost \$1000 to connect the telephone and some homes are without power, whereas in the cities connection costs \$40 and all homes have access to power. Even so, contact with CIH communities<sup>3</sup> has revealed significant numbers of NZ families have relinquished their landlines because of cost, and schools report that increasingly they are given pre-pay cell phone numbers for parent contact. In this way the family can still

<sup>2</sup> Information gathered at Computers In Homes school training sessions and family meetings

<sup>3</sup> Computers in Homes project survey data 2005

receive calls at no cost, without needing to put credit on their mobile phone, but this makes Internet access a problem when attempting to implement a home-based digital programme.

Income and employment are crucial factors as costs of computer hardware, telecommunication services and ISP connection can exclude low-income communities in both developing and developed countries. Lack of literacy in own languages as well as in English also inhibits participation, and Ross Himona (2003) reminds us that it is the academic elite who focuses on the importance of information and knowledge, culture and education, and technology itself. But he claims Maori people also want entertainment from their ICT via access to music, games, movies and sport. Poor households that may bristle with CD players, VCR's and digital TV dishes do not bristle with computers because the entertainment value does not capture their attention and they do not see any worth in the investment.

Computers In Homes communities are often low in the sort of social capital necessary to build ICT educational and employment opportunities. They are based around low-decile schools where there is less private transport and fewer volunteers to support getting computers mended, or assist in mentoring and sustaining the project. The Housing New Zealand CIH funding proposal (2003:1) for Fordlands in Rotorua stated *'social and economic issues in the area include low levels of academic attainment, income, home ownership, access to private transport, and access to telephones and the Internet; coupled with high rates of unemployment, welfare dependency and crime.'*

Spoonley challenges whose responsibility it is to build social capital and asserts that the onus is often seen to fall on the disadvantaged communities themselves, rather than the interaction between the different sectors of society. However,

*"Settlement Strategies" have been developed in New Zealand, at both regional and national levels, that emphasise the need for evidence that settlement policies are effective in ensuring that both migrant and host communities are experiencing positive outcomes. The New Zealand government needs better information to monitor the impact of settlement policy on outcomes for migrants, refugees, their families, and the wider community'* (Spoonley 2005:2).

The Ministry of Education has contracted 2020 to develop CIH projects in the regions to promote educational opportunity for newly arrived refugee children and their families via ICT, but the challenges facing this group are similar to those experienced by other disadvantaged groups in New Zealand.

## **Government Social Policy on Social Capital, Social Inclusion and Social Cohesion**

Social policy can be defined as actions that affect the wellbeing of members of a society through shaping the distribution of and access to goods and resources in that society. Government intervention in the UK promotes social capital for reasons of equity and efficiency, whereas New Zealand social policy speaks of *'positive interactions with others'* and *'civic behaviours...for the common good'* (Spoonley 2005; Wolf 2005).

The NZ Ministry of Social Development (MSD)'s Statement of Intent 2005 acknowledges that communities contribute hugely to social wellbeing by maintaining cultural practices, norms and values, and says well-functioning community has strong human, economic and social capital. It goes on to define:

*'Social capital, or the networks and shared values within the community, contribute to economic growth and social development. Social capital also fosters participation in decision making, and communities' engagement in the policy development and service delivery that affects them'* (MSD 2005).

Duncan (2005:1) also cites the MSD definition of social wellbeing as *'comprising individual happiness, quality of life, and the aspects of community, environmental, and economic*

*functioning that are important to a person's welfare'* and proceeds to challenge how wellbeing and happiness can be accurately surveyed, as MSD survey 2004, given personal and community differences and norms.

Social development is a process of coordinated social change that promotes wellbeing in the whole population and in disadvantaged groups within it. MSD aims to improve wellbeing in social assistance, health, education, employment and safety by

- ❖ Leading social development across government
- ❖ Delivering social protection and social investment
- ❖ Supporting families and communities so they contribute to better social outcomes for all New Zealanders

NZ's disadvantaged groups are identified as Maori, Pasifika, migrants, low-income families and people with disability, as they are more likely to have fewer opportunities and experience disadvantage. There is also an MSD emphasis on "High Level Outcomes for Families and Whanau" with respect to their role in providing wellbeing and protection for their members, passing on knowledge, skills, cultural values, obligations and property rights from one generation to the next. It is at this family/whanau outcome level that Computers in Homes impacts, by way of family literacy, skills development, cultural connection and intergenerational learning.

*'Reducing inequalities is the essential part of improving the wellbeing of New Zealanders, and is therefore an integral part of our work'* (MSD Statement of Intent 2005).

In order to deliver on these pledges, MSD needs the approval of Treasury, and acknowledges that social and economic development must reinforce each other and not happen for one at the expense of the other.

Mare, Mawson and Timmon's (2002) Treasury Working Paper supports the above finding in their measurement of deprivation patterns and changes in NZ, using the indicators of income, transport, support, qualifications, home ownership and living space. They aimed to construct a deprivation measure using linear regression techniques, based on income, educational attainment and employment statistics from three sets of census figures 1986-1996. They revealed Northland and East Cape as the most deprived areas, as isolation plays a part in determining distribution of deprivation. They also identified Maori and Pacific people as much more likely to live in deprived mesh-blocks than their European counterparts.

Te Puni Kokiri (2001) policy paper on Maori access to IT agrees that the IT industry offers significant prospects for Maori community development by improving communications between whanau, hapu and iwi, while also expanding opportunity for education and employment.

Similarly, Treasury's (2001) Working Paper on Reducing Maori and Pacific Inequalities concludes that policy should address improving outcomes for Maori and Pacific people who do worse than the NZ population median, while assisting others with similarly poor outcomes. It specifically mentions improving literacy and numeracy, while requesting programmes for the education, health and housing sectors of government, and suggest prioritising resourcing the needs of low-decile primary schools and Maori medium education.

'Policies need to be systematically and carefully targeted to these communities, or through these [government health and education services] facilities, so that a majority of the disadvantaged population is covered, given available resources' (Crawford: 13).

## **CHAPTER TWO – MODELS OF ICT INITIATIVES:**

### **Initiatives, goals and visions and management**

In this chapter we will examine different models of ICT initiatives, their goals and visions, how they are managed, and what their evaluators perceived to be their success factors.

#### **1. Public Access Support Sites, Online Telecentres and Community Computing Centres (CTC's)**

The merits of public computing centres as sole access for disadvantaged communities have been tested by numerous countries, as a solution to access issues. Warschauer (2003:2) reports concerns from parents in India regarding the Computing and Internet Kiosks set up there, aimed at educating young people into the digital age. There was no organised instruction or community organisation running the kiosks, and *'parents and community came to realise that minimally invasive education was in practice, minimally effective education.'*

The UK Online Programme review by Loader and Kebble (2004) notes that the use of public online centres by those perceived as excluded from benefits of ICT in the UK has been generally low, yet through them new media has become indispensable to community development. Since 1999 the UK government has poured £400 million into the UK Online Programme in an attempt to provide universal access to ICT for the population by 2005, via a network of community-based public access centres. This has been through the New Opportunities Fund, Capital Modernisation Fund and the People's Network. The centres have been a mixture of existing community informatics projects, public sector facilities and new projects, to create >6000 ICT centres in deprived rural and inner city England. The benefits have been that in CTC's local people can meet each other at computer courses; they can take advantage of community hosted servers; and can develop community websites. However, some people are already overburdened with Community caring and support work, so for them the Internet is rather an escape from their geographical community. They can instead find liberation in a virtual community of new people with similar interests, or social support for health and wellbeing accessed by being online.

The Malaysian Government initiated its Community Computer Development Programme to fund ICT enrichment access centres in rural areas featuring public telephones and PC's. Their evaluation listed critical success factors as:

- ❖ Full government financial support, while run by local entrepreneurs
- ❖ Provision of Broadband which can be extended to surrounding areas
- ❖ Training programmes for community and development of a local website
- ❖ Working closely with industry to ensure long-term success
- ❖ Involvement of state and district government plus local village committees

(Abu, Global Knowledge Partnership [GKP] Conference, Kuala Lumpur, August 2003)

Similarly, the Indonesian government funds "WARINTEK" rural centres, which offer access to ICT, science and technology information, training, advice and local content. The aim is to develop local non-profit ICT human resources reaching women and rural users to raise awareness of science and technology and eradicate poverty. Pratapo (2003: ibid) reports that rural women in particular have taken advantage of the opportunity to begin small enterprise and improve local agricultural production, and he lists WARINTEK success factors as:

- ❖ Extensive grant funding and working through schools and libraries
- ❖ Local entrepreneurs to run training centres
- ❖ Using expertise of professional associations, NGO's, SME's, students and researchers
- ❖ Making available information from government agencies
- ❖ Production of CD-ROMS on appropriate technology to assist community development

Neither of the above revealed their evaluation techniques, but the GKP (2003) recommendation 4.4 to United Nations and World Summit on the Information Society (WSIS) asks countries to:

*'Promote multi-sectoral approach to ensure public community access points at minimum cost, such as Post Offices, libraries and schools, for disadvantaged groups including migrants, refugees, unemployed, underprivileged children, disabled, indigenous people, minorities and those in rural/remote areas.'*

Kvasny (2002) reports how in Pennsylvania, USA a committee comprising community leaders, Deans from local universities, corporate executives and the Superintendent of Public Schools initiated a project to provide ICT education and access via a dozen Community Technology Centres (CTC's) in low-income neighbourhoods, using libraries, universities, recreational centres and a mobile CTC. Community members taking advantage of the opportunity, a significant number of whom were African Americans, reported a rise in self-esteem, especially the older participants. However the level of education provided was identified as being insufficient to make a real difference to the social capital of the community, particularly for the women, who identified the need to access an income. It showed that the centres were providing low-grade computer skills for low-grade gendered jobs, so women could only hope for factory, small office or data entry work at best. The men also saw the CTC's as a stepping stone with insufficient education and the perceived job choices were seen as low; some dropped out but others stayed in the programme, and continued further IT training elsewhere. In the words of one participant, highlighting the deficiencies in the model:

*'You know how a baby has to be breastfed milk. He can't eat food? Well that's how I feel. They are giving us milk, and this is not enough to feed us. We need to be able to eat real food if we want to get jobs.'* Kvasny 2002:15)

Loader & Kebble (2004:1) sum this up by saying:

*'Both the barriers to low take-up and the cases of good practice identified could inform future development. However, these are not sufficient to support the contention that community informatics initiatives have yet made significant challenges to social inequalities associated with adoption of ICT's.'*

## 2. Whole-of-town or city-wide home-based initiatives

Warschauer (2003:158) cites Hampton's study of the Toronto, USA, Suburban Housing Community "Netville" in which all people purchasing homes in the town were offered free broadband Internet access, resulting in a 60% uptake. This created 2 distinct groups who were sufficiently similar, but for their connectedness, to analyse for the impact of the Internet on social capital. A summary of Hampton's results shows:

| <b>Netville Residents with Broadband</b>   | <b>Netville Residents without Broadband</b>                                 |
|--|---|
| Maintained and developed more extensive networks of contact and support both within Netville and outside at all distances: <50km, 50-500km and >500km away.  | Decreased contact or support at all 3 distances.                            |
| For both groups, greatest contact and support outside Netville was from people 50-500 km away  |   |
| Community email list (Net-1) gave rise to social ties within Netville online, and later offline too.<br>More contact of every sort within community.<br>More contact with non-wired residents, as they took responsibility for sharing and passing on information from Net-1 list to non-wired neighbours. | Less contact with non-wired neighbours.<br>Benefited from wired neighbours. |
| Measured by the numbers of people known by name; talked to on a regular basis; called on the phone; and number of people visited at home   |   |

The city of Philadelphia's proposed Wireless Broadband Network has caused controversy even before it has been installed as it meets resistance from private sector companies that currently provide broadband to city residents. But the initiators say the city's focus is to ensure that low-income children have the same opportunities as those in wealthier neighbourhoods by providing affordable access to everyone. The telecommunications and cable providers deny being responsible for contributing to the digital divide and say low take-up is because of low consumer demand owing to low education levels, training and a lack of equipment. Proponents of the scheme argue the free networks would improve the delivery of municipal services and save millions of dollars in communications costs, plus make the city more attractive to companies seeking to relocate (Morrison 2005).

In contrast, the Ennis Project in Ireland began as an "Information Age Town" competition, initiated by a telecommunications provider and involving Irish towns' bids to be chosen for a capital injection of ICT resources. The winning town was to be showcased as an innovative example of what advanced connectivity could accomplish for the country. Ennis received \$22M USD to be used immediately, and runner up towns got \$1.5M with as much time as they needed. Every family in Ennis received an Internet-ready PC and smart card, while businesses got ISDN lines, websites and smart-card readers.

Research 3 years later revealed:

- ❖ There were limited training programmes, but without the accompanying awareness of why the technology was useful
- ❖ Well-functioning social systems had been disrupted to make way for the technology
- ❖ Many could not work the equipment
- ❖ Unemployed who had to sign in from home missed the social interaction at the job centre
- ❖ Many PC's were sold on the black market

The other runner-up Irish towns had had to be more inventive with their money and had set up more sustainable programmes to make use of the ICT opportunity. They developed awareness, implemented effective training and built on existing networks of expertise to support economic and social development. The researcher found they had more to show for their efforts to promote social inclusion through technology than the winner (Warschauer 2003).

### **3. School/Tertiary Institution Supported Home-Based Programmes**

New York City's Computers for Youth [www.cfy.org/](http://www.cfy.org/)

The Computers for Youth programme (CFY) began in 1999 and chooses a comprehensive approach to distribute used computers to families of school-aged children and youth, along with the know-how to use them. They select public middle schools in low-income communities and offer home computers to every student in selected grades. Students and families receive educational software, initial Internet access, training, technical support and bi-lingual websites. The organisers say distributing the PC's through schools drives their use, as teachers assign homework, and teachers, students and parents can communicate online. Schools report increased parent involvement and enhanced teaching practice, while they run workshops at school with hands-on experience using computers to improve the children's work. Parents learn how to set up their machine, browse the internet safely and improve their own academic skills. New York companies and corporations donate their computers when they upgrade their IT systems, reporting this as a positive experience, and the New York city Council has made cash donations. CFY latest newsletter lists their totals to date as Families given computers: 6,067; Individuals trained: 12,215; and partner schools 14. The programme is constantly expanding to reach new neighbourhoods and is perhaps the closest model examined here to the New Zealand Computers In Homes programme.

Australia's Adult Multicultural Education Service (AMES) Computer Programme for Refugees

The Melbourne Engineers Without Borders group (EWB) is involved in providing one-on-one ICT education to refugees in their own homes on a volunteer basis, in conjunction with AMES who currently run weekly English classes for newly arrived refugees. Many of the students cannot afford to purchase their own computers and their only access to them is for the 2-3 hours a week of classes. AMES maintains a database of current and past students that have attended these classes and this has provided EWB with prospective students who would benefit greatly from having a computer at home. EWB and AMES launched The Computers for Refugees project in December 2004. The program aims to provide recently arrived refugees with computer access in their own homes, regular tuition, ongoing technical support and Internet access. Five Melbourne University EWB members have piloted the project, and it is envisaged that the project will be expanded to include two more teams of volunteers and a technical assistance team.

Computers In Homes Programme (CIH) in New Zealand [www.computersinhomes.org.nz](http://www.computersinhomes.org.nz)

This educational intervention programme began as a pilot project on 2000, in the lowest-income community in the country, its purpose being to raise the literacy level of children from low decile schools.<sup>4</sup> The aim of the 2020 Communications Trust who launched the project is to provide a recycled computer, Internet access, training and technical support to families who would not otherwise have the opportunity to be part of the online world. Parents complete computer training at their children's schools before the PC goes home. They learn basic care of their machine, plus the support procedures set in place via the school. As the scheme had developed, parents have also embraced the learning experience for themselves, so the focus has broadened to family literacy. In some regions, the steering committees have expanded their vision further to encompass community literacy, and schools report increased school/home communication and more positive interaction between parents and teachers. Some parents have completed university degrees and other qualifications in teaching, social work, computing and the arts. What began as a project to bridge the digital divide has become a notable contribution to the social capital in low income communities. Government new settler programmes have incorporated CIH into their education strategy for newly arrived refugees, with the additional support of interpreters, family liaison workers, transportation and babysitting. It is envisaged the access to information for new settlers and the engagement with their children's schools will assist families to readjust to a new country and become part of the wider community.

*'Shared values and interaction (particularly economic reactions) are seen as critical to social cohesion, as are opportunities to engage in core institutions of society. These provide avenues through which migrants can gain access to resources and the positive outcomes they provide' (Spoonley et al 2005:5)*

It is not only refugee and migrant families in New Zealand that benefit from the opportunity to engage in the socio economic potential of the community and all its individuals. All the above initiatives were begun with a view to improving the lives of the participants. Those which appear to have the most sustainability and ongoing success are the ones which provide a greater amount of community support and expertise past the initial provision of hardware and conduit stage.<sup>5</sup>

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<sup>4</sup> The NZ Ministry of Education lists schools on a 1-10 decile scale which reflects the economic status of the communities each school serves. An area of high unemployment would have a decile rating closer to 1, whereas an affluent area would have a rating nearer 10. This gives the government a guideline for distributing equity funding to compensate. The first CIH School was a decile 1a: below the lowest rating.

<sup>5</sup> One NZ CIH school which insisted on sending the machines home before training was complete reported only 20% returned for training and the results of the project were disappointing.

## **CHAPTER THREE – RESEARCH**

### Research Methodologies for Social Outcomes

Dr Jim Cavaye, in his (2004) Pascal Report admits one of the most current issues in social capital is its measurement, as it requires a different approach to traditional measures of performance. It displays more than simple cause and effect, or investment and return, and can be viewed and measured from different perspectives, involving qualitative and quantitative data working together. People are asking questions about social connectedness because *'Measuring social capital gives policy analysts, managers and community workers a solid basis for decision making and planning'* (Cavaye 2004:11). Loader and Keeble (2004) note that the general optimism surrounding community ICT development is not matched by enough research providing systematic lessons to be learned. They ask:

*'What evidence currently exists from around the world on electronically networked communities as a way of improving life opportunities and support for people living in deprived communities? How robust is the existing empirical research and does it provide methodologically rigorous findings that can be used to inform the work and practice of policy makers, community groups, practitioners and researchers?'* (L&K 2004:2).

New Zealand's Ministry of Social Development (2005) says research and evaluation defines what works well in building communities' capability and in improving the way central government engages with communities. It claims significant research to inform future policy and service development in the following, but does not provide information on research intent, methodology or results:

- ❖ Defining Community Needs research aims to develop a practical understanding of how "community" and "community need" is understood in regional NZ
- ❖ Funding for Outcomes evaluation aims to determine whether its pilot is reducing transaction and compliance costs for funders and providers, and whether these have enhanced the provision of holistic services
- ❖ Heartland Services evaluation has evaluated the effectiveness of its service in improving support for voluntary groups in service centre areas, access to government services for rural people and interagency collaboration in rural communities (MSD 2005).

Cavaye (2004) goes further than this, saying social capital is not just about strong networks and soft outcomes; it can lead to hard outcomes like improved community infrastructure, employment and services. It is an important element in economic development, so policy interest in social capital is often driven by a perceived promise of improved productivity and cost savings too. At the same time, the 2020 Communications Trust (2005) notes the consistent request from government policy analysts for "hard" quantified data that clearly demonstrates benefits for communities.

### ***Methodologies and Outcomes – Effectiveness and Limitations***

Cavaye cites Weeks (2002) as finding that many place management projects lack coherent objectives and assumptions for meaningful evaluation. He suggests projects involving social capital and community change should have an underlying theory of change and a theory of what to evaluate, when and how. Stone (2001) notes that the World Bank was one of the first to pursue social capital as a research and development resource in 1998, and that Onyx and Bullen undertook the first primary data collection of social capital in Australia between 1997 & 2000. This chapter will examine the methodologies of the two related areas: research of community ICT programmes which aim to raise social capital, and research projects aiming to measure social

capital itself. Where these two disciplines overlap and interact, could inform future research and development of both social policy and community ICT initiatives.

❖ **Pacific** – the Pacific ICT Survey (2002) of country responses looked at the status of infrastructure, human resources and institutional capacity, networked economies, policy and regulatory frameworks, and constraints to development of ICT in the region. About the same time, UNESCO (2002) commissioned a fax and postal survey questionnaire on development and use of the Internet in 15 Pacific countries. However Guild (2004) acknowledges that there is little true research into the ICT sector in the Pacific region, although University of South Pacific and several regional organisations are increasing activity in this regard, and a region wide Internet-based information system is proposed at [www.spc.int/prism](http://www.spc.int/prism)>

❖ **Monash, Australia – general ICT telephone survey**

The Monash Community ICT's survey was conducted by telephone Sept-Oct 2002. Sample was drawn at random from 2 national directories and attracted 923 useable responses. The survey aimed to collect base data about the uptake of ICT's and provide information on how organisations were using technology to meet their needs. Findings showed an increase to 89.7% in access to the Internet.

❖ **NSW, Australia – Social Capital survey questionnaire**

Bullen & Onyx's (1998) study, Measuring Social Capital in Five Communities in NSW, was the first of its kind in Australia. Five neighbourhood centres obtained 1211 completed surveys from a random sample of 250 people between ages of 18 and 65. The aim was to establish a definition of social capital and to develop a valid practical measure for it. Questionnaires were analysed using SPSS and Statistica to relate attitudes, behaviours and knowledge to social capital or not. A statistical tool Factor Analysis was used to locate clusters and statistically identify underlying dimensions to the questions. Principal findings were that it is possible to measure social capital in local communities, but it is not an empirical concept.

❖ **San Jose, USA – general ICT telephone survey**

The San Jose Mercury News and the Kaiser family Foundation (2003) reports on their telephone survey, taken over Oct-Dec 2002, of 804 randomly selected 10-17 year olds in Silicon Valley. The above partners created the questionnaire and the ITS Intersearch Co conducted fieldwork in English and Spanish. Results showed 96% had been online, so internet use as nearly universal, but the level and quality of access differed by race and household income. Youth from low-income households were less likely to have gone online than those from higher-income homes, and Hispanics were less likely than whites or Asians. However, the Internet had become a key source of information for young people for both schoolwork and their personal lives. The lower-income and Hispanic youth relied more heavily on school Internet availability, adding weight to arguments for more community based access.

❖ **Pennsylvania, USA – ICT project observation, interviews and document analysis**

The School of Information Sciences and Technology at Pennsylvania State University conducted research into the effectiveness of a Community Technology Centre initiative for low income areas. The study involved 15 African American adult participants, 5 of whom had computers at home, but 4 of these were not operational. The researcher attended two 7-week courses with the 15 subjects over 8 months, and collected data using classroom observations, unstructured interviews and document analysis. The report notes that qualitative research uses multi-methods in its attempt to secure an in-depth understanding. Classrooms and labs were observed for 2-5 hour intervals, 3 days/week. The researcher observed in class and interacted during the breaks with students and facilitators (so would have become a participant-researcher although this was not stated) and field notes recorded at the end of each session.

There were >50 informal interviews of ~20 mins, not recorded, but followed up on for clarification. Interview guides were provided to inform conversational questions around; images of ICT; barriers to learning ICT; value of training; and access. Documents were satisfaction surveys completed at conclusion of courses, and demographic, socioeconomic and usage data collected by the city authority.

Findings showed that the managers' and city officials' discourse centred around cyber rights, empowerment and social inclusion, whereas the participants' discourse had themes of the economic and social opportunity that ICT enables and constrains; the risks, costs and benefits.

#### ❖ **California, USA – ICT project interviews**

An interview study of computer users at Community technology centres in California found that identity formation was critical component of learning how to use a computer. Many of the study participants who owned PC's had never used them, partly from fear and lack of knowledge, but also because their own self concept. They did not see themselves as the sort of people who used computers, thinking this was reserved for professional and academic people. 70% of interviewees mentioned similar issues regarding computers, and for those learners effective learning involved not only mastering skills but also joining a community of practitioners (Warschauer 2003:122). This identity issue was borne out in Kvasny's (2002) Pennsylvania study, where after training, an elderly participant showed a change in self-identity, describing herself and her peers as "qualified homebodies" capable of competing in the job market and looking forward to starting web based businesses.

#### ❖ **Princeton, USA – ICT telephone survey and interviews**

Princeton Survey Research Associates conducted a daily tracking survey on Americans' use of the Internet during March and May 2003. This involved a random-digit phone number telephone survey of 3553 adults >18 years. Of those, 2259 were Internet users and 1294 were not. The contact rate was 71.2%; of those the cooperation rate was 46.1% and eligibility rate was 87%. The completion rate was 93.5%; making a final response rate of 30.7%.

There were 6 group interviews of 40 people, mixed users and non-users from the community technology centres; and 3 individual interviews with non-users. All were given a short questionnaire before the interviews started. It appeared the positive influences on having access to the internet were having a college degree or being a student; being white, employed and having a good income; having social contentment and a positive outward orientation to the world; and being a regular reader of newspapers and watcher of TV news. Factors against being an Internet user were being black or Hispanic, and strangely enough, people with more active social lives via clubs or regular outings were less likely to spend time online.

#### ❖ **South America – ICT direct observation and data collection**

Warschauer (2003) cites a 2001 study by Proenza, Bastida-Buch and Montero, based on direct observations of telecentres in six Latin American countries and additional data from the rest. It showed telecentres alone are not enough, but were powerful instruments for development if part of a comprehensive economic and rural strategy. They need other institutional reforms that broaden work and social opportunities to impact economic participation for historically excluded sectors of the population. Telecentres are an important complement to formal education, as support to parents and community at large by providing after-school computer and Internet access, and one of the main benefits is empowering low-income populations to address their own issues constructively and effectively. Support for forums and projects that promote citizen interaction and social coordination are recommended. One South American finding that stands out in its agreement with the Malaysian and Indonesian experience is that market incentives were insufficient, and government subsidies are required to make public access centres viable, especially in rural areas with low population. Successful South American Telecentres:

1. Target low income populations and are willing to address community needs

2. Retain strong commitment to sustainability and adopt a business model consistent with that commitment
3. Backed by a leader with strong commitment and allow for necessary capital and time (Warschauer 2003)

❖ **New Zealand – Two broad-based national surveys and local project interviews**

Williamson (2005) reports an online survey, supplemented by telephone interviews which aimed to identify current practices and gaps in planning, training and support of ICT within community groups. Funding and staffing were identified as keys to sustainability, but both were lacking. Another survey of individuals using ICT in the community sector found those who have immediate access to ICT at home are at an advantage over those who rely on public access. The localised research was a post-implementation review of an ICT project management plus views of the participants, and an investigation of perceptions and barriers relating to ICT in education. Once again funding was a significant factor, while community ownership and local management of projects was seen as contributing to their success. Williamson stresses that in a community setting researchers are seen as participants in the process as well as observers in the study. He sees the researcher as a guest who develops relationships with the participants, and who works together with them.

❖ **New Zealand – an ethnographic, in depth longitudinal study, using interviews, surveys, case studies, observations and participant observation**

This study explored Internet access as a means of building low-income community capacity. Families participating in the Computers in Homes project were interviewed, surveyed and observed over a 2yr timeframe to assess the sustainability of their use of the Internet following the initial "honeymoon" period of new connectivity. The methodological imperative was to capture people's experiences and gain gradual insight over time, which required building researcher-participant rapport with the 24 adult participants and the 3 Principals at their schools. In general terms the group showed strongly positive views about the impact of the Internet on their lives, but transience of family dynamics and of Internet connectivity contributed to a fragile sustainability for the group (Williams 2005).

Other outcomes of Computers in Homes interviews nationally (Craig 2001) have included some parents' entering tertiary study, graduating with degrees, or gaining employment, but Williams warns that *'simplistic reading of outcomes should be avoided, no matter how tempting it is to see evidence of transformative powers for the Internet. Did person x really get a job because of it?'* (2005:14) This suggests there are social capital building factors in CIH communities, other than solely connection to the Internet, that influence overall benefits for families involved.

**Summary**

Using surveys for measuring social capital in family and community life means data is collected at the individual level. People can be asked about their community, region or nation, which in turn provides information on the social capital of communities. This provides an indication of the level and distribution of social capital within an area along with a detailed picture of social capital in the lives of individuals and families (Stone, 2001). Spellerberg (2001) identified specific New Zealand social capital indicators in our behaviours, attitudes and values which involves giving of ourselves in volunteering time and energy to others, even strangers, for nor personal gain e.g. giving blood. In population demographic data, the marae showed up as having no equivalent in Pakeha culture, not even the church; and the school had a home-like status to many. Both school and marae are important venues in CIH settings. Spellerberg thought the common thread that held all social capital facets together was communication.

## **CHAPTER FOUR – ANALYSIS**

### **Analysis of different attempts to evaluate community ICT programmes and to measure social capital associated with them:**

Here we need to repeat Loader and Keeble's (2004) challenge, now that we have considered the research at hand, about what evidence from around the world says about electronically networked communities and if they improve life's opportunities and support for people living in deprived communities. Examining the findings for empirically robust results may provide information to inform the work and practice of policy makers in New Zealand and beyond.

Cavaye (2004) reminds us that assessing social capital and community change requires evaluation, not just measurement. He says the data is not as important as the rethinking that comes from it. Evaluation involves understanding the community goals, measuring appropriate indicators and interpreting the information. This helps people rethink or redefine assets and enhances local decision-making for future planning. This would suggest that in order to support local deliberation of how outputs occurred and what they mean for future action, the researcher would retain an ongoing relationship of trust with that subject community. Wendy Stone (2001) agrees that bridging these community ties leads to generalised trust and this in turn enables good public outcomes, including sustainability.

The OECD summarised many international frameworks developed for measuring social capital and community wellbeing, involving a wide variety of indicators, logic and rigour, and found common themes included the use of both qualitative and quantitative data, and a range of techniques for gaining feedback from communities. Community members are a key source of information, rather than being seen as secondary sources of data, and many approaches involve feedback from community members in various forms. The two broad contexts identified for measurement are:

- a) Goal orientated measurement to evaluate change in social capital resulting from a project or intervention
- b) Absolute measurement assessing levels of social capital and wellbeing independent of particular activities (Cavaye 2004:12).

These suggestions have implications for the Computers In Homes project research, as community members and personnel such as teachers, principals, technicians and coordinators provide more timely and regular feedback via email and verbal reporting as the project develops, rather than solely retrieving all data and information at once at a later date.

Warschauer (2003) cites Lin (2001) as saying that the rise of the Internet has brought about a revolutionary growth in social capital. However, if online communication supplants rather than supplements face-to-face interaction, it can actually weaken social capital. This is partly because online interaction removes audio-visual clues and can encourage "flaming", when people express hostility in ways they would not normally do face-to-face. An extreme consequence is the more time people spend online a week, the more they lose contact with their social environment (Warschauer 2003). An illustration of this sort of negative outcome came from a meeting with Somali women from the NZ Refugee CIH project<sup>6</sup>, who complained they could not talk on the telephone to their circle of women friends while the family were using the dial-up Internet. Their coordinator explained that the telephone is a pivotal communication tool for refugee women and their social interaction in their new country. Even with the fiscal challenges of life on a low-income or social welfare benefit, refugee families manage to afford to keep the phone line connected for this purpose, so the humble telephone is not to be underestimated as an ICT in this instance!

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<sup>6</sup> CIH Family Meetings are held for feedback, support and evaluation

Bullen and Onyx (1998) found social capital is not an empirical concept, but there is a generic factor that can be measured in social capital. Their main measures were community participation, proactivity and trust; family, work and neighbourhood connections; value of life and tolerance of diversity. They explain that the social capital scale developed in their study is simplistic, which is both its strength and its weakness; that no scale can adequately deal with the subtleties and complexities of human life or the quality of life, and needs to be fleshed out with qualitative methods and case studies. *'It is nonsense to try and reduce the value of connectedness in the life of the community to a number'* (1998:8).

Stone (2001) agrees and notes there are alternate approaches to measuring social capital, which include qualitative research, the study of specific communities via participant observation, individual stories, area histories and collection of local documents.

Williams (2005: 14) goes further to remind us that ICT initiatives still have to sit within the real world factors for low-income families:

*'Further studies are needed to establish in what ways an understanding of elements and entities within or around household social networks can be captured to create enduring effective community building using ICTs as a vehicle. If communities are to strengthened by such means, then policy and practice needs to reflect a realistic view of the ways in which people's initial enthusiasm can wane and their interest and motivation can be lost to the pull of other real world concerns'*

## **Summary**

Closing the Digital Divide is still spoken of, although it has been shown that providing devices and conduits alone is not enough to make a difference in social inclusion for those not previously involved in ICT or connected to the Internet. This is because of the absence of the sort of social capital necessary to take advantage of the benefits of ICT's, e.g. income, literacy, associations, transportation, childcare and exposure to opportunity. Where people work, who their families and friends are, and whether they have been absent from the workforce for any length of time also impacts on their involvement in the digital world.

Most governmental policy makers appear to meld together the concepts of social capital, inclusion and cohesion, so that a differential clarity is not always present, but all feature as significant in the ongoing wellbeing of diverse peoples within nations.

What is agreed is that peoples' self image can alter dramatically following exposure to effective training in the use of computers and the Internet, such that they no longer see the ICT world as the exclusive domain of business people, professionals and academics. They can become members of the international club of computer users, and this is a dramatic realisation for some. This suggests that involvement in ICT initiatives to address the digital divide can have a positive impact on social inclusion.

## **Where to from here for New Zealand?**

### **What is Applicable to Computers In Homes?**

#### **Policy commitment and sustainability**

Cavaye (2004) warns there is always the risk that having gained the comprehensive measurement of this, there may not be the assumptions and processes necessary at a policy level to interpret and act on the information.

*'Developing appropriate, rigorous measurement is one challenge. Another is to demystify social capital and better allow people to formulate responses and act on the results of measurement. How do policy makers and practitioners respond to social capital issues identified by measurement? Do governments and communities have the policy, service delivery or community building responses, or ways to develop them? Is measurement at risk of creating community expectations without the processes to adequately support communities in addressing social capital issues?'* (Cavaye 2004:14)

Kvasny (2002) certainly identified doubts and risks of this nature in the Pennsylvania community ICT study. She said the sustainability of the centres was questionable in the minds of the participants, not so much in economic terms as with city officials, but expressed more in political terms. Support for community ICT opportunity initiatives can be extended or withdrawn as politics dictate, and participants and managers are well aware of that. Concerns of this nature were expressed by CIH refugee families during the last NZ election, when mention was made of withdrawing decile funding from schools and from identified sectors of the population.<sup>7</sup>

### **Hardware**

Much importance seems to be placed on the capacity and model of the computers provided by community ICT projects in New Zealand. There is a certain amount of disdain expressed by some technical personnel<sup>8</sup> at the provision of recycled hardware, creating a dichotomy between balancing costs of refurbished equipment plus associated technical support against that of new equipment. From a policy point of view in NZ, the reality appears to be one of little choice considering the cost of new hardware and the potential political criticism that hovers around programmes that provide "free" hardware to low-income communities.

When we consider the commitment governments and commerce could make to digital opportunities internationally, it is evident that the overall cost of computer technology has fallen so dramatically that in theory even low-income people should be able to afford it. Unfortunately companies are driven to seek higher and higher profits in order to survive by adding extra value to new products, creating a socio-economic paradox preventing the market from serving non-users. Companies and industries commit time and resources into developing extravagant and expensive products whose full capacity is needed only by a small proportion of the world's population, rather than mass-producing cheap products that could serve the needs of hundreds of millions of people (Warschauer 2003).

### **Community Programmes**

MSD 2005 Statement of Intent for Communities Hapu and Iwi declares its work over the next three years will focus on enhancing government agencies' relationships with the community and voluntary sector, helping to build their capacity, and ensuring that community-based services are consistent, effective and accessible. It goes on to say that its Family and Community Services (FACS) will be responsible for working with local government and communities to plan for the delivery of services to meet their social needs, via social development projects. This includes an online directory of services for families and >30 Heartland Service Centres nationwide. That in itself makes an assumption that people are IT literate and have access to computers and the Internet. As do the proposed NGO Study Awards to support staff in NGO's to undertake study toward a social work degree.

This has huge implications for the role of the 2020 Communications Trust and Computers in Homes, in their expertise at establishing effective projects and training centres empowering families and communities to access information via ICT, either in their own homes or via

<sup>7</sup> National Party election speeches 2005

<sup>8</sup> Feedback from CIH school staff 2005

computer education centres. One of the main areas of interest in tertiary study for CIH parents to date has been in social work, along with teaching, computing, and Maori studies.<sup>9</sup>

The MSD statement specifically refers to working with refugee and migrant families in the regions to improve the responsiveness of social services to the needs of their communities. CIH is already contributing to the social capital and inclusion of refugees through its projects with MoE Refugee Education. I repeat Spoonley's (2005) challenge from Chapter One that *'The New Zealand government needs better information to monitor the impact of settlement policy on outcomes for migrants, refugees, their families, and the wider community'* (Spoonley 2005:2). However, there is no mention of funding being committed for research into the effectiveness of CIH, and it would appear MoE and MSD are working independently and without a "whole-of-government" approach.

*'Our approach supports the State Services development goal of ensuring the total contribution of government agencies is greater than the sum of its parts – in other words working collaboratively with other departments to provide integrated advice and services'* (MSD 2005).

MSD also states that by 2006 it will be funding programmes in community-based services for refugees and migrants; a whole-of-government initiative that involves identifying their needs, improving response of services to these needs and ensuring they can access appropriate social services.

Wolf (2005) cites Cheyne, O'Brien and Belgrave (2005:164) as claiming that *'if poverty is to be overcome, significant innovation in income-support policy is required to ensure that the income disparity and well-being deficit do not lead to the development of a more permanently divided society'*. Although Wolf does not support these claims, she concedes that when policies under a previous National government showed a shift from a structural to an individual causal frame, poverty worsened. This is a challenge for government policies of the future in NZ, which are striving to be seen to be on a strictly needs-base, and not driven by race, culture, ethnic group or any other population based criteria. Cavaye (2004) agrees that social capital is not a component of change in itself, and will not overcome fundamental disadvantages in communities, but says a much broader realignment of power, opportunity and social change is involved in addressing disadvantage.

Kvasny (2002) also wishes to remind policy makers that there are costs and risks to participation in community ICT programmes for participants who occupy lower positions in an economically stratified society, like time, transportation and childcare. She asserts that increasing the level of ICT access and use among non-traditional users is not merely a matter of raising the aspirations of the individual. If the anticipated economic and social benefits are to be realised, policy solutions also need to address the structural and institutional barriers that make participation difficult for low income non-users. She states:

*'Unless various agencies such as governments, libraries, universities and corporations exert a concerted effort to address persisting structural barriers, attempts to increase ICT use among them will tend to reproduce rather than redress digital inequality'* (Kvasny 2002;20-21).

This appears in tune with MSD's High Level Outcomes for Families and Whanau which assures us *'Reducing inequalities is the essential part of improving the wellbeing of New Zealanders and is therefore an integral part of our work'* (MSD 2005).

This would suggest there are many practical policy lessons MSD and other government agencies can learn from the Computers In Homes practice and experience.

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<sup>9</sup> Computers In Homes Rejuvenation survey 2005

## Conclusion

### **Computers In Homes: digital divide initiative addressing barriers to social inclusion**

Computers In Homes projects revolve around the schools belonging to low-income communities, providing a community of practice for families accessing ICT and increasing the social cohesion of the wider community. Warschauer recommends schools as the hub from which the learning community operates, because they are accessible and possibly the least threatening institution for people of low social capital to enter, providing an ideal learning situation with the kind of scaffolding needed for apprenticeship learning to take place in a safe, supported way. This happens in a community where learners and experts together observe and imitate; model, appropriate and experiment; then provide and receive feedback. Peer learning is also a supportive scenario for learning, e.g. it is easier to learn a new computer programme while working in an environment where others are using it, rather than learning it alone at home.

*'Learning situations that provide for a good deal of informal peer networking maximise people's opportunities to learn; situations that exclude this kind of informal networking can endanger the learning process'* (Warschauer 2003:121).

After considering the various ICT initiatives at hand, Warschauer recommends programmes (like Computers In Homes) of learn-to-learn situations in which low-income participants in community development programmes eventually get to keep a computer after going through a substantial amount of formally organised training. He says strategies that take into account the social nature of access, recognise the interaction between online and face-to-face communications, and combine Internet access with a range of old and new media provide the best opportunity for promoting social inclusion through the use of ICT.