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“History and habit in the mobilisation of ICT resources”

by

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ABSTRACT

Evidence demonstrates that the digital divide is deepening despite strategies mobilised world wide to reduce it. In disadvantaged communities, beyond training and infra-structural issues, there often lies a range of cultural and historically formed relationships which effect people’s adoption of ICTs. This paper presents an analysis of local resident’s engagement with their council’s pilot project to develop a computer facility in their community centre. We ask to what extent people in poor urban communities, once trained, can be expected to volunteer to work on furthering community education and development in ICTs in their local area? Findings indicate four patterns of individual engagement with the computer project, *reflexive*, *utilitarian*, *distributive* and *non-participatory*. It is argued that local people engaged with the intervention in historically patterned and locally distinctive ways that served immediate personal and pragmatic ends. They did not adopt the long-term strategic goals of the council or university.

Information and communication technologies (ICTs) potentially provide means of timely response to social, economic and/or political matters impacting on one’s personal and community welfare (Australian Human Rights and Equal Opportunity Commission 1999: 2; Sawicki and Craig 1996: 512-513). Yet, research indicates that on a global scale, there exists a clear division between ICT ‘haves’ and ‘have nots’ (Seiden 2000: 329; United States Department of Commerce 2000: 2-4). Despite attempts worldwide to address this ‘digital divide’, it appears to be increasing in both its extent and effect (Howland 1998: 1; United Nations Development Program (UNDP) 2001). Household access to and use of ICT in Australia is amongst the highest in the world and yet high proportions of low-income and unemployed groups remain ‘unconnected’ (Australian Bureau of Statistics 2000: 3-6; NUA website). The primary predictor of Australian’s connection to the Internet is their level of education, with income as the second most influential factor (Lloyd and Hellwig 2000: iii). Many people in low-income and unemployed groups in Australia indicate that they neither experience a need to own a computer, nor to access the Internet (Ovington 2001: 8-9).

In the Australian context access has been predominantly through private provision of ICT goods and services. Government responses have included public provision of ICT infrastructure and support, and public subsidy of ‘partnership’ enterprises through programs such as “Networking the Nation”¹. All levels of government in Australia have initiated ICT programs. They have created opportunities for physical access and provided resources to address some of the inhibitors of social access, for example, the lack of knowledge and skills (such as literacy) that are required to successfully manage ICT (Bucy 2000: 50-51; Kling 1999: 18). To date, however, the mobilisation of such programs has been based upon an assumption that people will actively participate in civic affairs and incorporate ICT in the conduct of their personal affairs if only they have the means to do so. This assumption side-steps the knowledge that social access encompasses the social networks (occupational,

community, instrumental or personal) that provide the cultural and economic contexts in which new proficiencies and particular, local patterns of use emerge (Bishop, Shoemaker, Tidline and Salela 1999: 443; Loader 1998). Less tangible features of these networks, their communicative dynamics, which may effect people's reception of interventions particularly in low income neighbourhoods, are the negotiation of local events between service providers and recipients and the habits of interaction that these events have created. Therefore community history and habits of communication as well as the accessibility of material and human resources may be significant in shaping the reception and use of communications technology.

Historical events and habits of communication are the focus of this study of public provision of computers and technical and instructional support in a local community centre (henceforward the Centre) in Queensland, Australia. Our findings revealed established, local communicative practices that were both constraining and facilitating in their effects on the community's reception and adoption of computer technology. These practices had their origins in the history of social relationships in the everyday workings of the Centre, the Centre's historical relationship with local government agencies and in a range of cultural patterns distinctive to the community. We believe that detailed description of these behaviours is worthwhile because they identify for service providers, a range of client activities that on the surface may nurse hopes of eventual community ownership of initiatives but in reality may never meet such long-term objectives. We challenge the assumption that people in poor urban communities will choose to work voluntarily to sustain 'collaborative' ICT diffusion initiatives when they are offered or provided with the training and materials to do so. In fact we challenge the view that they should be expected to do so.

We begin with a description of the community served by the Centre and the kinds of social networks in which it was embedded. This is followed by a brief history of the introduction of computers into the Centre and a reading of local patterns of participation and dissociation with activities related to the process of implementation. Thus the scene is set for describing behaviours that were governed by people's own needs and their involvement in different social networks.

THE RESEARCH SETTING

Indy Estate² is a low-employment, under-served suburb on the outskirts of a large metropolitan area in south-east Queensland. It consists of about 750 households surrounded on three sides by industrial estates. Overall it has a youthful population, a relatively large proportion of which is composed of sole female parent households. There are comparatively large groups of Indigenous, Samoan and Vietnamese people. The community is served by a primary school, the Centre, and a Child-Care facility that is attached to the Centre. Public transport is limited to a weekly bus service. Residents without private means of transport having to travel to nearby larger centres for shopping, medical and employment services, rely upon local commercial taxi services or their ability to arrange a lift with another resident through face-to-face or telephone communications.

The City Council (henceforward the Council) serving the community was attempting to address factors regularly reported as contributing to the 'digital divide' by implementing a five-year plan to create an electronically literate citizenry. Working through the Centre, the Council had conducted a survey of Indy Estate residents in 1999. Local people were involved as interviewers, including English speaking people from Vietnamese and Samoan backgrounds who were able to translate the English worded survey when needed. The aims of the survey were to i) gather information from local residents about activities that should be held at (what was then) the 'new' Centre and to ii) raise community awareness of

the initiative to develop an activity program in the Centre. Three hundred and seven surveys were completed. In questions relating to the provision of computer skills the proportions of people indicating an interest in beginners courses, 43.65% (computers) and 20.85% (internet) seemed to indicate a fair degree of demand for training in computer basics (c.f. Romm and Taylor 2000: 4).

Council chose Indy Estate as one of its eight pilot sites because of this reported demand and also because the Centre already possessed a bank of computers (unlike most of the other community centres they were targeting). It should be noted also that the Council's actions were couched in a broader Australian context in which public funding for community centres was being reduced. Council's initial activities were designed to train local volunteers who could then organise further training programs and manage the computer facility when the two paid community workers' positions expired after three years. We discuss the history of these Council activities in more detail below.

Our university (henceforward the University) was invited to facilitate the community's development of vision, goals, policies and training programs to maximise the use of its computers. The six-month contract with the Council required certain outcomes the details of which were to be defined in collaboration with the community. Outcomes included the implementation of training programs, conduct of community events, and mounting a community web page. An additional goal was to explore the social conditions and material resources that would affect the deployment of the computer laboratory facilities. Taking an interpretive approach we expected that action research, participant observation and interviewing techniques would serve to develop an account of the social relationships, the allocation of resources and local practices involved in the introduction of computer technology.

SOCIAL RELATIONSHIPS - INSTITUTIONAL SETTINGS AND LOCAL NETWORKS

The Centre was maintained by funds from a number of sources including three years of Community Renewal funding from the State government which by law must be channelled through another government agency. Community Renewal funding for the Centre was deposited with the Council in yearly sums. In 2000, the Management Committee (established to oversee the running of the Centre) formed a partnership agreement with the Council and the Community Renewal funds were passed over to their control.

Volunteers were central to the Centre's operations and most volunteers at the Centre were financially supported by welfare benefits such as unemployment, supporting parent and invalid pensions. Recognition of this kind of local economic base is essential to understanding people's patterns of participation and dissociation in various social networks that intersected in the geographical locale of the Centre.

Social networks vary in their degrees of intimate embeddedness and formality of interaction (Venkatesh 1997). In describing types of networks we take our analytical cues from Venkatesh who offers a three-tier typology of the types of networks that operate in provider-client situations in poor urban communities. Venkatesh describes 'formality' in networks as encompassing:

both the status of the actor who delivers the service and the mode of delivery. With regard to status, an actor may be considered a formal provider if the delivery is conducted under the auspices of an organised structure--the organisation requires all service delivery to be sanctioned and to follow stipulated guidelines.... Further, the actual delivery of the service is formal to the degree that it is expected (ie., both

recurrent and predicted) and falls under some set of understood--legal or agreed on--guidelines.

If on the other hand an actor simply enjoys helping out in the neighbourhood and makes their services and expertise available in an *ad hoc* fashion, their involvement is understood as informal (Venkatesh 1997: 5). People's networks then may be imagined as a kind of continuum ranging from close personal ties to formal engagement with action groups promoting civic issues. Some of these kinds of networks were forged through the Centre while others were conducted outside it. The Centre can be viewed as one node of a range of 'community' networks for residents.

We characterised six types of social networks in operation at the Centre. (See Table 2). These were firstly, close personal kin and friendship networks where people provided emotional and material support for each other. People involved in these close, personal networks were conscious of the needs of their kin or friends, were able to rely on reciprocal support, and took these things into account when making commitments of their time at the Centre. Secondly there were many skills/interest groups established through the Centre. Friends and kin might participate in these groups together but there were also others who came to know each other through their participation in such groups. These networks were organised and sustained by residents and catered to shared practical skills and interests, such as how to put a bicycle together, or repair one (eg. the BMX club), or needs for leisure activity such as the dance and craft groups.

TABLE 1
Six types of social networks with local examples

Personal	Skills/Interest (at the Centre)	Instrumental (at the Centre)	Geographic Community	Occupational	Civic Institutional
<ul style="list-style-type: none"> ◆ Kin ◆ Friendship 	<ul style="list-style-type: none"> ◆ BMX club ◆ Food co-op ◆ Craft ◆ Dance ◆ Libraries (Toy, Tools, Books) 	<ul style="list-style-type: none"> ◆ Tenancy Action group ◆ Economic development group ◆ Community jobs plan¹ ◆ Training programs (St John's ambulance, computer) ◆ Computer Interest Group ◆ Council projects 	<ul style="list-style-type: none"> ◆ The Centre ◆ Religions ◆ School ◆ Darts Club ◆ Parks Association 	<ul style="list-style-type: none"> ◆ Centre staff ◆ Council staff ◆ University staff 	<ul style="list-style-type: none"> ◆ Resident action groups collaborating with Council ◆ Resident action groups collaborating with the University Research team

¹ Community Jobs Plan was an Australian government financed initiative to create jobs for the long-term unemployed.

Networks in the third group, which we have labelled 'instrumental', were quite different from the first and second groups in both the degree of formality of their organisational procedures and in the ways they were sustained. Instrumental networks were instituted by external bodies and served to manage the community's engagement with those bodies, for example the State Housing Authority (Tenancy Action group). These networks were maintained by formal and regular meetings and were sustained by the promise or reality of funds, services and/or information to be delivered to the community. In terms of the computer project, the provision of Council funds, secondment of Council personnel and the introduction of researchers to facilitate this goal constituted the bases of new 'instrumental' networks for those who were involved. Unlike the first two types of networks we have mentioned, Centre staff always participated in instrumental networks because they served as acquisitional and distributive nodes for the Centre.

People also participated in broader networks characterised by their spread to the boundaries of Indy Estate. We have labelled the fourth category 'geographic' networks. Examples are involvement in local religious groups like the Catholic Church and the Darts Club that operated from the local tavern. Connection with these networks catered to certain kinds of social needs and interests. However they differed from skills/interest groups in their degree of formal organisation and their long-term nature. Residents' geographic networks were developed through established institutions and voluntary commitment and interest.

Occupational networks, the fifth category in our typology of communicative networks, refers to those connections people made through their involvement in paid employment. Centre staff, one of whom was also a resident, and Council representatives, for example, accessed such networks. People maintained these networks through the necessity to meet the conditions of their employment. The conditions that sustained these networks were usually outside the control of individuals and not restricted to a given geographical locale. Interaction was more procedural and patterned to meet the goals of the type of work, including communicating through meetings, than was the case with any of the other forms of networking.

Civic institutional networks, the sixth category, refers to those involvements people sought to further the good of society generally, for example, lobbying government for particular community programs or inter-centre collaboration. They were characterised by political interactions, usually between an action group with a larger social entity. When mobilising such networks people looked to the bigger picture rather than to personal ends, whether those objectives were related to community skills/interests, occupational or geographic networks. However they also mobilised their informal and institutionalised networks to create such civic programs. A minor example would be University researchers' initiative to organise a trip for residents to visit another centre with an established community computer initiative. The aim of this 'inter-community event' was to gain an awareness of the possible uses of computer facilities in their own community.

Our observations in this research study focus on residents' networking activities as they functioned within the Centre in relation to the computer project. The account presented here is informed by analysis of our research observations and is primarily based upon residents' first-hand accounts of their intentions, motivations and values. We were interested in the ways people's habitual network associations and historical relationships governed their responses to the Council's and University's intervention to provide a formal computer set-up and training facility and to train volunteers to sustain it.

The Council had initiated a Computer Interest Group (CIG) as a vehicle for promoting their plans and mobilising the Centre's computer facility. By examining people's management of their networks particularly as their histories impacted on the activities of the CIG we have been able to identify habitual patterns of participation, dissociation, interaction and communication. Patterned behaviours develop over time, so we begin with a reading of the history of the introduction of computers and related activities in the Centre.

INTRODUCING COMPUTER RESOURCES

Centre management used the Community Renewal funds to purchase 10 computers as necessary equipment for anticipated training programs. This initiative and the subsequent actions by representatives of the Council to see them put to use are the subject of this section. There are three relevant phases to this story; i) Early interventions - installation of computers and 'training'; (ii) the Council's call for research; (iii) action research.

Prior to the University's involvement with the Centre eight of the ten computers were set aside in a 'computer laboratory'. A local training college, supported by the Council, had run basic computer training and office skills courses using the computers at the Centre. These courses were offered to participants free of charge. In mid-2000 Council organised a weekend, 'train the trainer'³ program designed to afford participants basic computer use and maintenance skills, and familiarity with the use of the internet. The purpose of this training was to motivate key local residents to become proficient enough to train other volunteers who in turn would train others and thus set in place a pattern of community education that would foster sustainability of the computer facility. Four people participated in this program, Meg, George, Sophie and Jenny. (Pseudonyms are used to facilitate clarity of argument and discussion except for Angela and Lesley, who were the researchers for this project. In some places where the character is not part of the ongoing discussion in the paper we just use a title, for example, 'administrative officer').

People's levels of readiness for undertaking the program varied. Some struggled, as Sophie observed,

I kept up because it's in my nature and Jenny had already been through this and for the other two ... it was all rushed and all dumped on them all in one weekend and they didn't really – we were presented with concepts where we were able to put up our ideas that were relevant, but we could have done with a lot more nursing.

The agreement between Council and the participants in the 'train the trainer' program was that they would each teach one similar course without remuneration as a reciprocal obligation for their free admission to the course. However as the course progressed they became concerned that no materials, for instance handbooks, were used in their training. Jenny, a trained teacher, in particular was critical of the conduct of the course. Participants became concerned that they would not have the necessary resources at hand to carry through their obligations to teach the same program to others and the idea of producing a handbook was raised.

There was a difference of opinion regarding the stance participants should take with respect to their agreement with the Council and Jenny insisted that she be paid to produce a handbook. Meg, George and Sophie opted to do the work voluntarily as they felt that creating it would afford them further skills. When the handbook was completed Jenny's name was left off the title page as she had not contributed a comparative effort to its creation and publication. This alienated Jenny, who, independently of the others, had been promised paid work by the Council. Jenny's alienation affected many further communications and network

formation regarding the computers in the Centre, a happening which Erica, the Centre coordinator, felt she had to try to smooth over.

So there had been conflict and three wrote on the manual that they wrote it and they left this person off and I said 'why don't you put [on the handbook] a special thanks'. And they did but that wasn't enough. So this person's really pissed off even though she only put [in] - say 5 hours and these people put in 3 [months]. But Rita actually talked to these three and saying that they should have put this person's name on because she's very close to this person that she's paid a lot of money to. So she's just interfering and making things worse. So I'm trying to be diplomatic.

The bad feeling also meant that the original participants did not mention their involvement in this first stage, or reveal (until quite late in the CIG process) that they had compiled a handbook which might be useful for CIG programs. So in the early history of the introduction of computers to the Indy Estate community Centre a set of relational circumstances developed, largely due to mis-communication and people's reactions to a particular situation, which had a counter-productive effect on the later action research process instigated by the University.

Independently of the Council, the local training college acquired six months additional funding to conduct office skills and Microsoft Word courses at the Centre. Erica indicated that these courses 'went really well'. From beginning to end the participant numbers in these programs reduced from sixteen to six - Lexy, Kirsten and Josie and three other young women. It was towards the end of these activities, late in 2000, that the Council approached the University regarding involvement in their pilot programs. However the path to University collaboration with the Centre was not a straightforward one.

Assured that the University would be interested in collaboration with the Council and the community, members of the Council called a special meeting at the Centre to institute the pilot project, though they did not include University representatives in this action. Four Council members were there, the section manager, the community area manager that coordinated Council relationships with the Centre (Rita), another Council representative who regularly worked at the Centre (Marilyn), and Andy a (self-taught) computer expert. Two Centre staff attended the meeting, the Centre coordinator (Erica) and the volunteer worker (Liz). Three residents were there - Sophie, George and Lucy. The purpose of the meeting was to urge Erica and Liz to have the Council's initiative approved by the Centre's Management Committee at their meeting that same evening. Liz's recollection was, "I just get the impression they have their ideas about what we could be doing and its put [to us] that we have to make a decision really quickly and if we don't, we're almost being 'party poopers' or something".

When Erica and Liz addressed the management committee, members asked them what exactly the University would be doing, who would be the person working with the community and how the research would benefit the community. Liz said they had no answers because "they [the Council] never really explained. They said the uni wants to do research and could the Management Committee decide tonight. And the Management Committee started asking questions and we didn't know anything." Erica and Liz felt pressured and rushed, and reported that they were not given adequate information to make informed decisions about the computer initiative.

Erica contacted the University in an effort to gain more information. She arranged with Lesley for her to visit the Centre with other members of the research team, and Lesley addressed the Management Committee at its next monthly meeting. At the time the Management Committee was satisfied with the approach the University was adopting and

understood that a project officer (Angela) would be appointed to work at the Centre during the six months of the project at the beginning of 2001.

At the beginning of 2001 Council representatives called another meeting, again without communicating with university representatives, and instituted a computer interest group (CIG). This gathering set the date for the new group's next meeting in February of 2001 and produced a multiple page document outlining a mentoring program that it was suggested the Centre use to train volunteers. At the same time Andy determined to run training sessions in computer maintenance over the Christmas break despite the advice of Centre staff that no one would attend during this Australian summer vacation period. These moves by Council confused Centre staff because their understanding had been that the **University** would be working with the community to determine the ways they wanted to approach the issue of developing their computer facility.

Erica and Liz were concerned to clarify roles of the various stakeholders in the development of the Centre's computer facility and raised this issue with Angela when she first contacted them. Angela met with Erica and Liz in January, 2001. The history of happenings and clarification of roles was discussed at length. Angela faced the option of disbanding or ignoring the Council's CIG or working out a way to work with it. Preferring to take cues from the experiences and advice of Centre staff, she settled for the latter in the hope of avoiding a confrontational situation with Council representatives and also offending local residents. With the instigation of the CIG, University researchers assumed that there was an interested contingent of residents who were keen to develop the computer facility and to take responsibility for sustaining it.

In effect, the Council's actions in starting the CIG and suggesting training programs pre-empted the University's intention to proceed with a more thorough-going community consultation and participation procedure. However Erica, Liz and Angela settled on a collaborative approach which we hoped would level the stakeholder playing field. We adopted the established CIG and proceeded with the next meeting date already set by the Council's deliberations. This step in the process takes us forward to the events promoted by the University - the action research phase.

Three Council representatives attended the first CIG in 2001 that was facilitated by University researchers (Lesley and Angela). Erica and Liz were there as well as local residents, Ron, Sarah and Wayne, and Kirsten. Meetings of the CIG thereafter were conducted monthly with people taking on various tasks, like compiling policy guidelines for the use and maintenance of the computer facilities and instituting drop-in guidelines and charges for community access to the computers. However, it quickly became clear to us (as it did to Davidson, Schofield and Stocks in their work with teachers - Davidson et al. 2001: 31), that residents were not fully aware of the kinds of uses that could be made of computers. In order to make informed choices about some aspects of the computer facility, people in the community would need to gain a clearer grasp of how information and communication technologies could serve them. Therefore our action research process grew to include awareness raising events and is more properly described as participatory action research (See Kemmis and McTaggart 2000).

We initiated three educative and awareness-raising events. The first undertaking was a fact-finding tour to another community centre that had developed exemplary computer training programs. Two workshops focused on empowerment through individual training. The first involved learning to user PowerPoint (a software program for creating slides that can be set to run automatically using a computer and a projector to project images onto a wall

screen). This was a practical and timely initiative designed to produce a promotional tool for the Centre to be used on national ‘Community Centres Day’. It also aligned with the University’s contractual agreement with the Council to facilitate community ‘events’ as part of the project. Community Centres Day was a kind of Expo when people travelled to each other’s community Centres and viewed their activities. The last workshop involved learning to surf the internet. Chat and e-mail were demonstrated, and the participants were assisted to view exemplary community web pages. This strategy was designed to give community members ideas for the construction of their own web page.

Table 2 shows the main milestone events (training sessions, meetings and workshops) leading to the inception of a project designed to set up and formalise the use of the computer laboratory at the Centre. It lists participants who attended each milestone event and their status (resident, staff, Council or University employee) in Centre activities.

TABLE 2
Participation in Milestone Events of the Centre Computer Project

* refers to people who were also residents

	Train the trainer Mid 2000	Training Microsoft 2000-2001	Special Meeting Late 2000	Computer Interest Group – Feb 2001	Visit to Community Centre Feb 2001	Internet W’shop April 2001	PowerPoint W’shop April 2001
Residents in the geographic community served by the Centre (volunteers)	1. Sophie 2. George 3. Meg 4. Jenny	1. Lexy 2. Kirsten 3. Josie 4. Lu Others to 16 people	1. George 2. Lucy 3. Sophie	1. Wayne 2. Sarah 3. Ron 4. Kirsten	1. Wayne 2. Sarah 3. Ron 4. George 5. Sophie	1. Wayne 2. Sarah 3. Ron 4. Sophie 5. Kirsten	1. Wayne 2. Sarah 3. Ron 4. Lexy 5. Kirsten
Centre Paid Staff			4. Erica 5. Liz	5. Erica 6. Liz	6. Erica 7. Liz	6. Erica 7. Liz	6. Erica 7. Liz 8. Admin Officer * 9. Young Women’s coordinator *
Council			6. Rita 7. Marilyn 8. Andy 9. Sam	7. Rita 8. Marilyn 9. Andy		8. Marilyn	
University				10. Lesley 11. Angela	8. Angela 9. Emily	9. Lesley 10. Angela	10. Angela 11. Emily 12. Trainer

We delineated four modes of engagement with the computer project which we have labelled *reflexive, utilitarian, distributive and non-participative*. Firstly the *reflexive* mode of engagement involved participating in multi 'community' networks and reflecting on processes in one site that might inform or facilitate initiatives in another, as in Sophie's case described below. Secondly, people taking a *utilitarian* approach evaluated the extent to which networks or initiatives offered means for meeting personal and vocational goals. This mode, illustrated by Lexy's and Kirsten's activities, drew upon a less diverse range of networking sites, usually the Centre, School and Centrelink - job/training agencies. The third mode of engagement, which we have described as *distributive*, meant exposing oneself to as many activities operating at the Centre as time and personal commitments would permit (for example, Ron, Wayne and Sarah). The final, *non-participatory* mode of engagement refers to those people choosing to remain at the periphery of activities involving computers at the Centre. It is important not to lose sight of the *non-participatory* communicative practice as it had an interactional effect with the other three engagement styles. Our categorisation is offered to facilitate discussion and interpretation in this paper. It is not meant to provide a definitive typology of modes of engagement by which other communities might be examined. The modes of engagement we discuss are specific to our observations from the point of view of CIG participation in the Indy Estate community Centre computer project.

Larger numbers of residents participated in the workshops than in any of the CIG meetings, including the first. Younger (school-leavers to 49 years of age) women's participation in events was generally patterned differently from the involvement of older people (aged 50 and over). Kirsten and Lexy (for whom, like Sophie, the main source of income was a time-limited Supporting Parent Benefit) were long term participants in the Microsoft training and participated in the PowerPoint workshop. However they did not involve themselves in activities that required decision-making for the Centre, or in workshops promoting skills they already possessed. Kirsten attended the first CIG meeting and then decided to leave the 'politics' to others, opting to work as a volunteer in setting up the Toy library.

Older people tended to be involved in more Centre activities than Sophie, Lexy and Kirsten. This group's main source of income was either disability support or unemployment benefits. Wayne, Sarah and Ron attended all meetings and workshops from the first CIG onwards. Meg, who participated in the early 'train the trainer' workshop, like Sophie and particularly Jenny, still nursed bad feelings from that experience and had decided not to become involved in any computer related activity. She became the treasurer of the Centre Management Committee which, as she indicated herself, put her in a position that would exempt her from working on the computer project. George, who was well versed in computer software and hardware maintenance, dropped in from time to time in situations that would give him an outlook beyond his community. Ill health precluded his participation in the CIG in an ongoing way. An examination of residents' networks of involvement together with information regarding their social situations and their motivations and intentions will help us describe their patterns of engagement with the computer project.

An expectation revealed in Centre discourse, was that people who were involved in the earliest milestone events relating to the introduction of computers would continue their interest and commit time to their development. These expectations had their origins in the Council's contractual type agreements from the 'train the trainer' workshops and Andy's computer maintenance sessions already discussed. Rita and Andy continued to promote their strategies through the activities of the CIG. However a cursory glance at Table 2, reveals that there was little continuity in residents' actual participation in these events. Those who provided the continuity were people in formal occupational networks from which the imperative to commit to working on the computer project was derived. For Centre staff,

Council and University personnel, the CIG was the locus of an instrumental network like other projects at the Centre. Over time the lack of continuity in residents' participation alerted us to the possibility that they were not prepared to own or take responsibility for the program.

CIVIC RESOURCES AND LOCAL PRACTICES

To examine how local people's participation in social networks of various kinds impacted on their activities with respect to the computer project we will describe threads of involvement for Sophie, Lexy, and Ron. Sophie's activity provides an example of the *reflexive* mode of engagement while Lexy's pattern of behaviour illustrates *utilitarian* engagement. The description of Ron's participation indicates a *distributive* form of engagement. We include *non-participatory* engagement for the sake of completion, but have described this mode in more detail elsewhere (Coco and Jolly in press).

Sophie

Sophie was a young single mother receiving a Supporting Parent Benefit. Because she drove her child to pre-school, Sophie was often restricted in the times she could be available at the Centre for meetings. As can be seen from Table 2, she was involved in the initial 'train the trainer' program, the special meeting at which the Council expressed its wishes, and she attended all the workshop sessions. She also attended early CIG meetings. Sophie was very active in her local evangelical congregation, a denomination in which believers actively visit households in the community. She did not pursue friendship networks with people at the Centre nor participate in any of the skills/interest groups that were running. She developed an instrumental relationship with Rita, the Council representative, who suggested the possibility of paid work at the Centre. Early in the participatory action research process, Sophie supported the Council's priorities and agenda, which was to train people in computer maintenance.

People at the Centre generally perceived that Sophie would be an ideal leader for the ongoing development of the computer project. She was continually encouraged to attend later CIG meetings. Meeting times were altered to suit her commitments that included attending to her child's needs. However, apart from looking in on one or two meetings for a few minutes, she never attended a CIG meeting after it became apparent that the process was not going to follow the Council's agenda. She **did** indicate to Erica and Liz her keenness to use the skills she had acquired in the 'train the trainer' program and she initiated and developed computer-training sessions for the 'community jobs plan' (See Note 1) instrumental group – which they did not patronise. Council provided funds to pay her for this service.

During her interview with Angela she expressed her dissatisfaction with the approach to community involvement she perceived being promoted at the Centre. To her mind the preferred solution to problems was to find money to pay someone to do the work. She felt that Centre staff should be out there talking to people and getting to know them as she had done in her Church work. Sophie drew the connections between the ways she went about doing her church work and the strategy she felt would work for gaining people's interest in the computer program. She said:

I've met so many different people in this community because amongst other things I'm [an evangelical Christian] and I know every single person because I knock on their doors and there are just certain ways of approaching people. For example depending on which race and religion and culture they come from you have to inquire about their entire family before you can talk about what it is that you want to talk about and you have to establish long term relationships.

Sophie clearly wanted to do something through the Centre for the community. Her commitment to kin and community networks outside the Centre enabled her both to observe

from a distance and to avoid outright refusal to participate in the CIG process. At the same time her community and friendship networks (in which her needs and interests were also served) outside the Centre afforded her a critical perspective on the operations at the Centre. She used skills gained in those arenas, in her capacity as a volunteer, to create the craft group independently of all other activities and personnel at the Centre. The inception of the Craft group, which happened towards the end of the University's contract with the Centre, became very successful, attracting up to fifteen people each week.

Sophie's predominant mode of engaging with the CIG was a *reflexive* one informed by her reflection on experiences in geographic networks outside the Centre. She attended milestone events – a strategy for keeping informed about current activities and for maintaining personal political alliances and securing resources. She attended workshops – a strategy for improving personal skills that may in turn serve to gain further employment and perform tasks related to her voluntary work. However, neither the broader computer project, nor the CIG were sites that Sophie adopted as useful networks for furthering the interests of the local community. As she indicated in her interview, she initially felt the provision of resources from external bodies was a good thing, but her question was how the resultant initiatives would be sustained after external funds ceased. The problem needed to be solved by mobilising local interests but she felt that this was not sufficiently reflected in the composition of the CIG which was attended by a disproportionately high number of outsiders.

Lexy

Lexy's children attended primary school. She and Kirsten (Table 2) received Supporting Parent Benefits. They were friends (friendship network) and both supported each other in terms of collecting children from school, arranging transport, joining training programs together and working in a volunteer capacity at the Centre. Lexy attended the second training session funded by the Council, the Microsoft Word training. Participants in this training group formed an informal strategic network oriented around the goal of gaining employment. At morning tea sessions they shared information about upcoming jobs (telemarketing and teachers' aides were predominant), means of accessing important information about positions, and shared experiences in negotiating the job market.

Lexy became proficient in word processing skills and willingly helped others with computing problems. Because of her skills and outgoing manner, Lexy fulfilled emergent computer related needs at the Centre. For example, when faced with problems using Word, people would often say 'ask Lexy, she'll know'.

A lot of Lexy's time was spent in volunteer work at the local primary school. Participation in this geographic community network structured much of her time as well as providing other instrumental networks for gaining employment. Frequently, events such as a change of plans in the school's timetable, or a new opportunity to gain further training in a particular skill prevented her from engaging with CIG activities on a continuous basis. From Table 2 it can be seen that she participated in the Word training and PowerPoint sessions (that afforded her skills for job seeking). On those occasions she was encouraged to participate in the CIG but she demurred from commitment.

Lexy's activities were strategically geared to improving her resume and her chances of gaining part-time employment and dealing with Social Security. Her friendship, skills/interests, instrumental and geographical networks supported these activities. She indicated to Angela that she only wanted a certain level of part-time employment because she did not want to lose her Supporting Parent Benefit.

On occasion Lexy (and Kirsten) gained paid piecemeal work through Rita, involving skills like data input and telephone interviewing. Lexy's other geographic community, instrumental and skills acquisition networks absorbed most of her time and she was able to call on her involvement with these as a reason for not making a commitment to the CIG. Kirsten spent more time at the Centre than Lexy. She kept Lexy informed about CIG events and Lexy was frequently 'around' offering *ad hoc* advice and therefore informal rather than formal support for CIG activities.

Lexy's and Kirsten's activities illustrate the habitual behaviours of people interested in computer related activities but oriented towards improving their resumes and gaining employment. We identified their engagement as *utilitarian*. Ron, on the other hand, was categorised in the group of people who seemed to have dispensed with job aspirations, opting alternatively to involve themselves in providing a service to their community, a *distributive* mode of engagement. His participation indicated a large (almost full-time) commitment to voluntary work at the Centre.

Ron

Ron received state income support. He was a close friend of Wayne's (Table 2, first column) and was Sarah's partner (fourth column). Ron's personal kin and friendship networks were integrated more thoroughly than those of Lexy with other networks he established through the Centre. At times Sarah's daughter (but not Ron's) accompanied them to CIG meetings and participated in activities. Sarah's daughter had left high school as soon as she came of age (16 years in Queensland) and was experiencing emotional difficulties. Ron always accompanied Sarah, and was involved in networks characterised by a gendered patterning.

Ron organised and ran the Food Cooperative and the Tool Library with Wayne. In the Food Cooperative both Ron and Wayne, their partners and a number of other women worked with a clear division of roles. On each Thursday Ron and Wayne would set out early in the Centre bus, fill it with fuel and proceed to purchase bulk goods at wholesale prices and bring them to the Centre for packaging and pricing. In the meantime, the women would organise the money and set up the weighing and packaging production line. The buying time, when local people visited to do their shopping, was a one hour period in the middle of the day during which time the women managed retail while the men took care of lifting and shelving goods and returning the bus. The women tidied up at the end of the day and balanced the books and the funds.

Wayne and Ron had taken 'ownership' of the Tool Library as another of their voluntary commitments, purchasing equipment such as a pressure spray, vacuum cleaner and overseeing borrowing (and returning). As can be seen from Table 2 Ron, Wayne and Sarah were the constant participants in all CIG milestone events as well as the monthly meetings. As they were the only local people constantly available they had considerable power over such things as the timing of meetings. If Sarah had a hair or doctor's appointment times would be arranged to suit her. All meetings were terminated by 2.30 pm so that Ron and Sarah would be able to collect their other daughter from school on time. Ron, Sarah and Wayne participated also in the community Dart's club (a geographical network) and this also governed their time schedules.

Ron, along with Wayne and Sarah, "attended everything" as one person observed. They participated in other instrumental groups designed to improve services and conditions for the community, like the Tenancy Action Group and the Economic Development Group. But they did not engage in these networks of interaction with the goal of procuring a paid job

or of taking a pro-active role in actioning the strategy these groups were designed to implement. These people held limited educational qualifications, and their difficulty with literacy was evident in their participation in the workshops. The advantage of the workshops though was that they could use other skills, such as visual composition (in PowerPoint) and mind-links in searching for their favourite topics during the internet workshop. They experienced a deal of success in these activities. Ron affirmed his role about the PowerPoint production, "This is *our* story. *We* can tell people about how we put it together" (instead of Angela).

Unlike Sophie or Lexy who spent the larger portion of their time in activities outside the Centre, a great many of Ron's kin, friendship and skills/interests networks were generated and energised through his voluntary work at the Centre. His mode of engagement was a *distributive* one, geared to seeking out any material or information resources that would serve the immediate and pragmatic needs of the local community. As a resident he also benefited from this mode of engagement. So his participation in instrumental networks based at the Centre had the character of identifying goods and services that could serve the community. Unlike paid workers, his involvement was not strategically focused around sustaining a fully functioning facility. By comparison, Lexy's and Sophie's participation and dissociation was governed by longer term personal goals, moving beyond the need for state income support (Sophie), improving their job related skills, and maintaining networks within and outside the Centre that could further these aspirations. Ron indicated in one interview with Angela that though he was willing to work his age now seemed to work against him.

However Lexy and Sophie, Ron, Wayne and Sarah were alike in the way they demurred from adopting pro-active roles and taking responsibility for and ownership of the computer facility. This was the Council's and the University's goal and while representatives from those institutions engaged in actions to implement this strategy, Sophie, Lexy and Ron, and other residents engaged differently with different purposes.

HISTORY AND HABIT

The computer facility at the Indy Estate community Centre existed as a result of historical decisions and actions by the city Council, other government bodies and the Centre Management Committee. Events arising from the Council's attempts to train volunteers to use and maintain the computers at the Centre promoted habits of behaviour that noticeably affected people's reception of the technology and related organisational processes. Disempowering communicative practices and unhappy relationships had formed between residents, the paid community workers and some Council members during the initiatory stages of the computer project. Council's mis-communication of information about the University's role reproduced an interactive patterning already experienced as habitual by community Centre workers. By taking a participatory action research approach University researchers hoped to foster practices in which the effects of power relations might be minimised.

But we were outsiders. Indy Estate residents had a long history of interaction with outsiders, they had learned how to maximise their benefits from proposed 'initiatives'. It took several months for us to realise that the appearance of interest from residents and promises of involvement would not result in their taking the lead and furthering the development of the computer facility. We held out hope because residents had taken ownership of and led other projects in the community Centre quite capably. Their customary networks of involvement and personal motivations engendered complex modes of engagement with the computer

initiative which appeared to signal 'interest'. It seemed that some people would become civically engaged in pursuing long-term sustainable goals for the computer facility.

It is not simply the case that residents did not wish to take ownership because the goals for the computer facility were those of outsiders. Sophie, Lexy and Ron are exemplars of very differing opinions about the relevance of creating an ICT facility in Indy Estate. To summarise, there were four characteristic repeated local patterns in people's forms of engagement and dissociation with the processes of introducing computer technology into the Centre. Some people like Sophie (also Jenny, Meg, Lucy and George, Table 2) believed that the facility would benefit to the community if only local resources could be mobilised. They attended some initial training sessions and meetings which were designed to lay the foundations for future actions. But they were disillusioned by the lack of local involvement and the predominance of outsiders in deliberations. They moved in a wide, multi-level assortment of community networks beyond those that were generated at the Centre and tended to observe the activities of the CIG from a distance. This was the *reflexive* mode of engagement in which people also participated in civic/institutional networks operating through both the Centre and outside agencies, for example, Meg work's on the Management Committee or Sophie's church work.

Secondly, there were those people, like Lexy and Kirsten, with initiative and education who had the potential to direct the CIG process with support from us. They demonstrated civic awareness and responsibility at the **local level** and were highly involved in the Centre, School and Centrelink⁴ job/training agencies, though the scope of their 'community' interest was not as wide as that of Sophie. Yet, their choices with respect to the participatory action research process were to 'help' but not give a formal commitment of time and ownership of the goals and processes. They used those aspects of the project that helped them build their skill base for the purpose of improving their future job opportunities. Theirs was a *utilitarian* mode of engagement.

The third pattern, illustrated by Ron, was a *distributive* one, a practice of participating in everything offering at the Centre. People who, like Ron, engaged in this way were highly involved in a range of voluntary works that served local and immediate needs. They were associated with similar networks as Lexy and Kirsten but confined most of their networking activity to the Centre, procuring whatever material and knowledge resources they could through the Centre. These people evidenced low literacy skills, were generous with their time, particularly to 'help', but did not wish to take leadership in the context of the computer project. This was not because they could not lead, as Ron, Wayne and Sarah lead other interest groups quite skilfully.

The fourth pattern of *non-participatory* engagement that we have outlined more thoroughly elsewhere (Coco and Jolly in press), we include here for the sake of completion. The 'non-participants' were those volunteers at the Centre, for example Wayne's partner, who said to us as we worked in the Centre that they had no interest in computers, nor did they have a use for them. Through their networks they communicated their scepticism to the people who worked with the CIG more closely thus affecting their day-to-day judgements.

Taken together, these four patterns illustrate how local residents who regularly volunteered at the Centre managed the Council's and University's project for implementing the computer project in their community - that is, as a formally controlled intervention. They did not use (or envisage using) the computers for intra-community communication and action. Consistent with Bishop, Shoemaker, Tidline and Salela's (1999:1) findings, it was the latent and secondary functions of the face-to-face 'computer' group contacts that engaged people, the

‘community-networking’ and ‘job skills-networking’. Local residents used it as a strategy for achieving personal ends such as gaining new skills, improving job options, filling in time, working with their friends and for meeting community needs rather than the immediate acquisition and application of ICT skills for the sake of providing these for future others. This is consistent with the literature which reports that people in poor neighbourhoods put their energies into coping from day-to-day rather than in pursuing longer term goals to transform their situations (c.f. Agada 2000: 152).

Elsewhere in this volume Laura Stanley identifies relevance, fear and self-concept as psycho-social factors that contribute the complexity of ICT adoption ‘beyond access’. Our experience is consistent with her conclusions. A good proportion of people who frequented the Centre did not see the relevance of computers. Sophie’s and Lexy’s perception on the other hand was a ‘qualified’ relevance. They could see the use of ICTs in their own lives but they could not envisage how ICTs might serve people who we have categorised as *distributive* and *non-participatory* in their modes of engagement with the project. Even though the Council’s 1999 survey revealed a perceived need in the community generally, Centre volunteers’ modes of engagement were such that they did not extend their communications to other residents who were not known to them through the web of networks they sustained through the Centre.

Erica and Liz, two of the three full-time staff, were constant participants in the CIG because it was a formal requirement of their occupational status. However they continually deferred decisions that required action, such as engaging experts for computer maintenance or deciding on which provider to host their web page. Apart from lack of confidence in this area, which they communicated to us, we believe they were slowing the process until they could perceive an incentive being generated from the community. This too had always been a goal. Said Erica when we were collaborating over the action plan for the Council’s report (to paraphrase), ‘We want to work with community time, not Council time’. However, Erica and Liz were community agents of government bodies that supplied strategic funding that was linked to observable outcomes and short-term deadlines. They were limited in the extent to which they could progress according to ‘community time’ which tends to take much longer than funding bodies are prepared to accommodate.

IMPLICATIONS

The implementation of a local government program to provide ICT and technical and instructional support to a local (under-served) community in Queensland, Australia was the focus of this study. Our findings revealed established, local patterns of interaction and communication that were both facilitating and constraining in their effects on the community’s reception and adoption of computer technology. Communicative practices which had their origins in the history of social relationships in the everyday workings of the Centre and in the Centre’s historical relationship with the Council (and the state, more generally), in the economic base of the local community and in a range of cultural patterns distinctive to the community, limited the reception and diffusion of the new technology. We identified four established patterns of co-operation and independent action that were geared around improving limited personal access to employment, material goods and essential services. These modes of engagement show how residents learned to maximise their benefits from ‘initiatives’ proposed by outside service providers while at the same time resisting their agendas for change.

Local habits facilitated the interest and involvement of residents in the program because it was implemented through the local community Centre which was one node of their

social networks. Their habits of face-to-face or telephone (often mobile phone) communication enabled some to be involved in the project as members of a Centre-based instrumental network. But their 'habits of the heart' (c.f. Bellah et al: 1985) were a barrier to both their pro-active engagement in a project formulated by 'outsiders' and their acceptance of new technologies of communication and information gathering. The potential to achieve longer-term goals of increased information access, active citizenship and economic development that might be envisaged by policy-makers strategically oriented toward closing the 'digital-divide' was not to be grasped, at this time, by local residents.

Our experience confirms the value of a careful study of local needs, local history and local habits of communication prior to the introduction of new technologies. Systems designers might first ascertain the type of collaboration evident in the day to day activities among existing stakeholders and whether the parties are reasonably satisfied with their relationships. Policy level deliberations must take into account the nature of existing communications between service providers and clients. If these are confused and conflicted, as was the case in the Indy Estate community centre some mediation may be required before any talk of community needs or joint goals and expectations can be realised between stakeholders. This might mean, in some cases, training or re-training existing personnel in communications skills and in strategies for developing effective collaborations with new stakeholders.

In situations such as the one faced by Indy Estate residents, University researchers and Council representatives, closing the gap between the ICT rich and the ICT poor involved not only the delivery of hardware, software and ICT related skills. Ostensibly collaborative enterprises still encode relations of power and their attendant habits of perception and behaviour. Careful attention needs to be paid to the ways in which otherwise marginalised communities might interpret and then engage with (or resist) the processes of introducing new technologies.

¹ "Networking the Nation" is a federally funded program of subsidy for ICT projects.

² To protect the identities of participants the locale is given the pseudonym, 'Indy Estate'.

³ 'Train the trainer' are programs designed to provide people with information and tools to teach others a body of knowledge relevant to their shared needs.

⁴ 'Centrelink' is a Commonwealth Government agency that serves as the 'shopfront' for the delivery of Commonwealth social security allowances as well as the assessment of eligibility and the monitoring of clients who receive benefits under certain conditions of 'mutual obligation'.

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