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# **Assistive Computer Technology and Empowerment: The Vocational Experiences of Blind and Visually Impaired New Zealanders**

A thesis presented in fulfilment of the requirements for the  
degree of

Doctor of Philosophy  
in  
Development Studies

at Massey University  
Palmerston North, New Zealand

Wendy Elizabeth Williams  
2004



**CERTIFICATE OF REGULATORY COMPLIANCE**

This is to certify that the research carried out in the Doctoral Thesis entitled  
“Assistive Computer Technology and Empowerment: The Vocational Experiences of  
Blind and Visually Impaired New Zealanders” in the School of People, Environment  
and Planning at Massey University, New Zealand is

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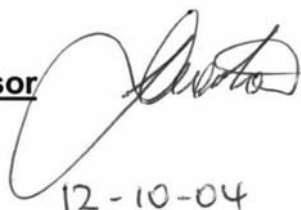
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## **Abstract**

The technology revolution which has occurred in New Zealand over the past 30 years has introduced an array of assistive mainstream and specialised computer technologies (ACT) such as the internet, voice and braille output systems. These technologies compensate for the information access limitations of the blind and visually impaired and promise eventual empowerment. In a few years New Zealanders with sight impairments have travelled from print illiteracy to print literacy, and the memories of the change, its impact, its success and pitfalls are still relatively recent. This thesis seizes the opportunity to explore their impact on empowerment using the vocational experiences of visually impaired and blind people as a case study.

Underpinned by a philosophy of empowerment, the study targets individuals who are themselves visually impaired, are of working age and have come into contact with ACT, along with relevant individual specialists and organisations. In methodological terms it is mainly qualitative with a pragmatic and complementary mix of focus groups, personal and specialist (key informant) interviews and a survey.

The study discovers that ACT has indeed spawned a range of benefits for participants in their personal and social contexts. It has improved users' information management abilities. Improvement in information management has led to spin-off benefits such as communication, which facilitates social involvement and participation. Participation and improved management of information have improved ACT users' response capability, or their ability to respond to changes in their external vocational environments. These three benefits when applied to the work context have led to increased access for users to another set of personal and social, tangible and intangible resources available through paid and voluntary work and self-employment. However some persistent social barriers and underlying structural factors impede the empowering potential of ACT.

# Acknowledgements

I set out to do this thesis with a vision to improve and mature from the process. I believed that if I could observe other people's struggle with similar issues to mine - in this case blind and visually impaired people and ACT in another setting - that would help me to understand more about impairments and development and outfit me for making a meaningful contribution to the lives of marginalised peoples.

My journey took me to New Zealand - a country a universe away from my own. Here in a foreign, beautiful and cold (climate-wise) land I met people who have left indelible imprints on me. While the thesis process has been important and the prima facie reason for my visit, Kiwis (local name for New Zealanders) have impacted my life in far greater ways. They have shown me gentleness, politeness, kindness, love for animals, the value of order in social and political life and some of the finer aspects of human nature.

In turn they have forced me to reconsider some personal and cultural assumptions as well as to adopt some practices and strategies that will undoubtedly be beneficial in my personal and professional life. These, dear readers, are the intangible and unquantifiable but extremely valuable aspects of the PhD degree and the thesis writing process for which I owe a debt of gratitude to New Zealand.

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To the participants who shared their time and lives with me I owe endless gratitude. Special thanks to those participants, who for reasons of confidentiality I cannot name here, for opening themselves up and sharing their personal lives with me. While their input into this study was extremely vital, I valued participation in their personal lives more. They made me feel especially welcome and accepted throughout my stay in New Zealand.

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I am deeply grateful to all for their contribution to the completion of this thesis. If by chance I have forgotten to mention anyone who has contributed it was not intentional but a slip of the memory. Some of those friends whom I have not named in this acknowledgement will find their names attached to some participants. Some people cannot be named at all because participants shared similar names and confidentiality obligations required me to keep them undisclosed, but they have my genuine appreciation nevertheless.

Wendy Elizabeth Williams

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## List of Abbreviations

ABC	Association of Blind Citizens of New Zealand
ACC	Accident Compensation Corporation
ACT	Assistive Computer Technology, also known as “access”, “enabling” or “adaptive” technology
ADA	Americans with Disabilities Act 1990
ATIG	Assistive Technology Interest Group (hosted by RNZFB)
CBO	Community-Based Organisation
CBR	Community-Based Rehabilitation
CCTV	Closed Circuit Television
DOS	Disk Operating System
DPI	Disabled Peoples’ International
EMS	Equipment Management Services (now Enable Funding)
GUI	Graphic User Interface
HTML	HyperText Markup Language
IT	Information Technology
JAWS	Job Access With Speech
NASC	Needs Assessment and Service Coordination
NGO	Non-Governmental Organisation
NZQA	New Zealand Qualifications Authority
OCR	Optical Character Recognition; usually software allowing scanning and recognition of printed words
PC	Personal Computer
RHA	Regional Health Authority (now superseded by other bodies)
RNIB	Royal National Institute of the Blind (Britain)
RNZFB	Royal New Zealand Foundation of the Blind
SES	Special Education Services
SGML	Standard Generalized Markup Language
TIS	Telephone Information Service (RNZFB)
UPIAS	Union of the Physically Impaired Against Segregation (Britain)
VI listings	Visually impaired listings (RNZFB email listings)
WINZ	Work and Income New Zealand

# **CHAPTER 1: TECHNOLOGICAL CHANGE, DEVELOPMENT AND EMPOWERMENT FOR VISUALLY IMPAIRED PEOPLE**

## **1.1 Introduction**

This thesis examines the impact of Assistive Computer Technology (ACT) on empowerment using the vocational experiences of blind and visually impaired New Zealanders as a case study. The underlying question driving this investigation is whether ACT is helping to empower people with visual impairments, in the context of a more advanced country.

Computer technological change has suddenly and dramatically generated a subset of specialised technologies such as talking software that enable people with significant visual impairment to convert printed documents into accessible formats. Until the 1980s blind New Zealanders had been operating with established ways of accessing and processing information with braille, typewriters and tape recorders. By the time this research was undertaken they were reading books for themselves, proofreading their own writing, exchanging messages with sighted people, communicating and generally becoming involved with the new technologies available. These new technologies promise to supersede older forms of technologies in the way that they enable their users to access information in a fashion virtually equal to that of their sighted counterparts. Therefore they also hold out to users an exciting potential to overcome the limitations of their impairments and join the rest of their society in harvesting the benefits of development through work and participation.

This case presents us with a particularly unique opportunity to explore visually impaired people's experiences in the context of the dramatic and fundamental changes that the computer technology revolution potentially contains. This is a particularly valuable opportunity as it offers all the elements of a classic case for the discussion of empowerment.

The people who have participated in this study are the first generation pioneers - those who have lived through the revolution. In only a few years, those with sight impairments

have travelled from print illiteracy to print literacy, and the memories of the change, its impact, its success and pitfalls are still relatively recent. This constitutes a perfect opportunity for an exploratory, qualitative research to document these experiences before these innovations have become fully routinised.

Soon blind New Zealanders will be brought up with talking computers and scanners. They will take their empowering potential for granted. The technology will be perfected; training will be systematic and professional. Using a scanner and talking computer will be as “normal” a part of the blindness experience as braille, then guide dogs, once were.

This study’s participants however, are quite different. They have participated in the ACT revolution from its beginnings. Consequently they occupy a rare position that may not occur again in the context of a developed country and present us with an opportunity we cannot afford to miss.

The New Zealand case study has several characteristics which make it an interesting and informative study. It is a small developed country with a tiny blind population and therefore one where an outside researcher can gain easy access to a pool of willing subjects through word of mouth and personal contacts. It is also a country with a long-established welfare state committed to providing financial support for the blind. New Zealand has one monopoly service-providing NGO (non-governmental organisation) and one self-help group that impact the lives of ordinary blind New Zealanders. Furthermore, it is a country with its own private enterprise corporation (Pulse Data International) dedicated to developing electronic technology for the blind, and acting as agent for two major overseas suppliers of adaptive hardware and software.

Usually developed countries have escaped development studies discussion because they have been seen as models for other less advanced countries to follow. However, because developed countries still have elements of backwardness and disparities in the situations of different sectors of their population (Brohman 1995:125), this case presents us with an excellent opportunity to assess mainstream approaches to empowerment of the visually impaired - a traditionally vulnerable people.

This chapter introduces the study and outlines the major conceptual issues arising in the study. It explains how this thesis is organised in order to orient the reader (section 1.2).

It outlines the academic responses to technological changes to locate the research question within that debate (section 1.3). It describes the alternative development approach and the emergence of empowerment as a dominant development focus (section 1.4). The remainder of the chapter (section 1.5) explores ideas of empowerment and attempts to show how these may apply to people with visual impairment in the context of our research question. The following section explains how the thesis is organised.

## **1.2 Description and Organisation of the Study**

The first half of the thesis provides a wide overview of the major concepts and debates in the field of development studies (Chapter 1) and the major historical actors such as the state, NGOs and private enterprise (Chapter 2), before describing the computer revolution (Chapter 3). We then focus the material in Chapters 2 and 3 on the specific historical case of the blind and visually impaired in New Zealand (in Chapter 4). To do this effectively we introduce many concepts and debates which do not initially seem to have immediate relevance to our present topic, as they are general and drawn from multidisciplinary sources; however, they are critical to establishing the core concerns of this thesis.

Up to the mid-point of the thesis, our discussion does not break much new ground; it is mainly a literature review providing the broad context for the remainder of the thesis. What is arguably original in the first half of our discussion is the substantive field to which familiar concepts are to be applied. That field, of course, is disability in general and blindness in particular, and the potentially empowering role of new adaptive technologies. This half of the thesis sets the stage as it explains the discussion that occurs in the academic literature.

The second half of the thesis is concerned with the personal experiences of blind and visually impaired New Zealanders. They may be reasonably ignorant of the academic discourses surrounding development and empowerment, but they possess the critical ingredient of their own first-hand knowledge of the subjective experience of empowerment. Their experiences of wrestling with the potentially empowering capacity of innovations in computers occupy the remainder of this thesis.

In methodological terms, the study is qualitative with a mixture of ethnographic and quantitative techniques. We explain the main issues dealt with and the design in more detail in Chapter 5. It would have been interesting to undertake a major random sample survey of the entire blind population to find out who uses computers and their associated demographic characteristics. However, supervisors and focus group participants strongly advised against this. Their experience suggested that it might not be productive in our research situation, for a number of reasons discussed in Chapter 5. Therefore obtaining information required actually talking to people. Consequently we have used a non-random sample survey in conjunction with interviews.

This means that the sample is unrepresentative and the findings cannot be generalised to all visually impaired New Zealanders, but this is a methodological trade-off that is generally known and accepted in social science literature. It offers valuable insights that the research acquires by allowing subjects to narrate their own first-hand experiences. The participants are not academic experts in development studies, but they are experts on development in their everyday lives. This study tries to capture and retell their inside experiences on their behalf. The task of the development studies specialist is to provide the context (Chapters 1 to 4) of the individual experiences which are the central subject.

To summarise, this chapter sets out underlying assumptions and background issues for the study. Chapter 2 discusses the role of the state within the context of mainstream and alternative development approaches, its impact on people with impairments in general and implications for people with visual impairment in particular. Chapter 3 sets out the arguments surrounding ACT and vocational empowerment of people with impairments. Chapter 4 describes the New Zealand context in which the ACT revolution has occurred. Chapter 5 relates the approaches and data collection strategies that were used. The findings are reported in Chapters 6, 7 and 8. Chapter 9 concludes the study with a discussion of the implications of the findings for development and empowerment, as well as pointing the way for future research.

The next section discusses technological change and its implications for our topic.

### **1.3 Technological Change and Development: An Open Question?**

This section introduces some general debates that have occupied the discussion of technological change. It briefly explores the debate in an attempt to set the context in which ACT has emerged to affect the lives of blind and visually impaired people.

Blind and visually impaired people, like the rest of the world, are currently faced with technological changes that have resulted in profound social and global changes. OECD countries appear to be moving towards an information economy where knowledge and information are becoming strategic resources and transforming agents. Some evidences of this transformation are the growing importance of information as an economic resource, the wide diffusion of information technology (IT), increased growth in the production of information and the resulting large information workforce, and the special status of scientific knowledge (Rosenberg 1992:328-9).

This transformation has resulted in the rapid shift of OECD economies to the service sector and the increasing growth of employment in areas such as finance, insurance and real estate, business and community and personal services. In contrast, the output in employment share of traditional services such as electricity, gas, water and construction among others, has remained stable or declined. Other sectors that use relatively low technologies in the manufacturing process such as textiles, food and chemicals have also declined. Simultaneously, those involving more IT-based technologies for manufacturing such as aerospace computers, electronics and pharmaceuticals have been able to maintain their share in the economy (Pilat 1998:5).

These changes have sparked off an optimistic and deterministic academic response. This response sees them mainly as the result of a simple inner logic and having a necessary and predetermined impact on work, society and life (Williams and Edge 1996:53). So, for instance, dramatic changes in computer technology are expected to revolutionise the way people live, work and think (Forester 1985:xiii). For less advanced, poorer countries they will, if managed, improve educational prospects, human development and change the course of societies (UNDP 2001).

Utopian writers about the information society argue that technological changes will lead to radical social transformation. Such a transformation will result in a society that is distinctly different from the industrial society. This information or post-industrial society will witness a radical change in the role and function of key social institutions such as the market and political systems.

The market's role will change from that of the industrial society where market expansion drove the need for colonial acquisition. In the information society, knowledge will become the market and problem resolution will become the driving force. A radical shift will occur from an emphasis on chemicals and machinery as the leading industries for development based on a primary, secondary and tertiary industrial hierarchy to intellectual and knowledge industries in the information society.

Radical shifts in political power structures will see the centralised power structure of industrial societies replaced by the more multcentred, voluntary-type arrangements which will characterise the information society. Participatory democracies will replace parliamentary democracies, taking into account minority opinions and being maintained by consensus. Citizens' participation and litigation will bring about social change, in contrast to the current situation where this is done through labour unions and labour disputes (Masuda 1981:30-33).

Other authors are less convinced about the extent of radical social transformation likely to occur as a result of computer technology. They believe that the final outcome will depend on interventions by actors such as government as well as on a complex set of social and institutional conditions (Iacono and Kling 1991). Still other writers such as Lyon (1988:148-9) criticise this debate because among its main flaws it relegates issues of inequality and relations of power to the background. Instead it assumes that the distribution of computers will have the same positive effect on democracy that the distribution of print media had.

The shortcoming inherent in the above debate is that its mainly deterministic nature makes it attractive to policy-makers and industry leaders (Dutton 1996, Williams and Edge 1996) who rely on technological change to solve development problems. This reliance in turn is ineffective for resolution of problems affecting marginalised countries

and peoples with visual impairments because technological change does not address fundamental causes of disadvantage and disempowerment. For instance, this kind of view leads to suggestions like those offered by Trindade (1991), who argues that less developed countries should cooperate to take advantage of already developed technologies and organise adoption strategies for new technologies. Others see the business sector as having the capacity, through measures such as “flexible specialisation” described by Kaplinsky (1994), to be the means by which poorer countries should bridge the gap.<sup>1</sup> Yet others, such as Hanna (1991), argue that developing countries should take a sectoral approach and focus on sectors such as informatics, which offers new ways to make the most of the managerial and institutional resources of developing countries.

Again, while these suggestions do have some merit, they do not necessarily address underlying causes of technological disadvantages confronting less developed countries. Consequently, while these countries have for the most part entered the information revolution, they have done so as importers of technology (Arriaga 1985:294). Also, they generally still lag behind in terms of technological change and where they do not, they experience the changes in inequitable ways with great variations between regions, countries and sectors (Myers 1998, Yam 1998). Furthermore, they are still in danger of missing out on the great development benefits inherent in this change process (UNDP 2001).

In contrast to technological determinism, the social shaping of technology school of thought argues that technology and the change process are results of historical, social, economic, cultural, organisational and other underlying factors, decisions and choices which eventuate in the forms of technology we use today. Thus technology configures its users, and the users also configure the technology according to their needs (Law 1991a, Woolgar 1991, Bijker and Law 1992, Williams and Edge 1996).

From this perspective, the future is not on a predetermined technological path, nor is it necessarily optimistic. Instead, present choices regarding the design, development and use of computer technologies are shaping future outcomes. At the same time,

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<sup>1</sup> A central feature of flexible specialisation is the organisation of production where layout is reorganised from a functional pattern that groups like machinery together, to a cellular pattern in which different families of products are manufactured in smaller “mini-factories”.

technological changes can facilitate the transformation of organisational structures and work practices and therefore cannot be seen as systematically empowering any particular group or privileging any particular structural arrangement (Dutton 1996:5).

However, it does appear that for people with visual impairment, technological change extends a special promise to compensate for their impairments to the extent that they can access some form of economic empowerment at least. The next section explores these implications for people with visual impairment.

### **1.3.1 Implications of Technological Change for Empowerment of the Visually Impaired**

In this section we look briefly at the implications of technological transformation for visually impaired people. It is expected, through greater reliance on information as opposed to physical prowess, to open up opportunities for empowerment in work and access to social power for such people (Moses 1988, Hunt and Berkowitz 1992b, Roulstone 1998). This is because, along with general technology, a range of technology that helps to address the special needs of people with visual impairments has been created. This technology is known as Assistive Computer Technology or ACT.

ACT, as used in this study, refers to any aids and devices which are computer based or computer driven, and are helpful to blind and visually impaired users. These are of two types:

1. Those specially designed or adapted for use by people who are blind and visually impaired. Some examples of the latest types available are: personal computers (PCs) with synthetic speech systems, screen magnifier programmes and braille input and output systems.
2. Those which, though not specially adapted, can be considered ACT as they contain inherent features which assist such people, e.g. regular office scanners, the internet and email.

This thesis examines the ways in which this supposedly radical source of social and economic transformation affects a traditionally disenfranchised sector of the population. Blind and visually impaired people are high consumers of ACT and related special

services. According to Michailakis (2001) they represent the majority of consumers of ACT funding and are the majority of users. Stepien (2001), in her exploration of the ways in which assistive technology facilitates equal opportunities for academic success for students with disabilities in post-secondary education at a Canadian university, also supports this conclusion. She found that visually impaired students were high users of services providing access to education, using five out of seven available services.

The fact that they are high users of accommodation services means that visually impaired people will be relatively severely affected by the development and management of ACT. As Todd (1992) found in his study of educational support services required by blind British students, ACT was among the most critical factors in their successful integration into mainstream settings. This is probably because the communication needs of visually impaired people are very different to those of sighted people. This places visually impaired people at different types of disadvantages to other people with non-sight-related impairments (Taylor 2000). It also implies that they may also gain unique advantages from the technology revolution.

Above all, technological transformation may have a contradictory effect on them. This is because information computer technology may impact positively on the individual at the micro level by compensating for the impairment, but at the same time lead to exclusion from working life through increasing rationalising of the working process that it generates over the long term at the macro level (Michailakis 2001:494).

So far in this chapter we have described changes in ACT and speculated about its empowerment potential for visually impaired people. This however is only half of the research question and we need to explore ideas of empowerment. This is done in the following section.

## **1.4 Alternative Development and the Emergence of Empowerment as a Dominant Development Focus**

This section introduces another key term that has now come to occupy attention in development studies. This is “empowerment”. While this section does not define it (as section 1.5 is devoted to defining as well as discussing issues surrounding the term), it outlines how this idea came to be prominent in development studies and describes its

relevance for visually impaired people in the New Zealand developed country context. It also explains the rationale for applying empowerment approaches to people with visual impairments.

Empowerment and appropriate strategies for empowering people occupied a peculiar, contradictory theoretical position in the mainstream and alternative development discourse which emerged in the six decades after World War II. In mainstream development thought, empowerment remained largely untheorised and unexplained as an explicit focus of development attempts, especially in theories such as modernisation and dependency which gained prominence relatively quickly after World War II.

These mainstream theoretical approaches were commonly linked in their adoption of a largely materialistic, growth-centred, top-down development paradigm, which in turn produced top-down development impulses. Progress was conceived as economic growth, where development planning was to focus on economic transformation. This led to the elevation of economic indicators such as standards of living and material well-being as ideals of development (McMichael 1996:33). Development and development economics was largely concerned with material enrichment, that is, expanding the volume of production of goods and services.

Rooted in utilitarianism, these approaches assumed that increased production would generate higher income and higher incomes would result in greater economic utility and welfare and subsequently reduce poverty and raise the general population's well-being (Griffin 2000:53). Growth in GDP and GNP, technology diffusion and other effects of modernisation would eventually spread benefits of development through a trickle-down process to the neediest sectors of society. Here development was essentially a top-down process, with the objects of development appearing as abstract indicators in the construction of this process (Brohman 1996:201-2).

Within this kind of thinking, participation and later empowerment were conceived within an economistic, top-down, materialist framework that saw them as part of an economic development strategy (Hall 1988:92, Abbott 1995:160). Participation was adopted as early as the 1950s when social activists, social workers and major development organisations recognised that major development projects had failed because people

were left out of their design, formulation and implementation. Development and aid organisations such as the United Nations and the World Bank also recognised that where people were locally involved and actively participating in the project much more was achieved with less expenditure (Rahnema 1992:117).

Much of the emphasis during this early phase was not on broad popular participation but rather on maintaining political control (Craig 1989:4). Participation was essentially another resource injection from outside, necessary in order to make development activities function with as few hitches as possible. It was considered essentially as a manageable input under government control and confined to the implementation and evaluation stage of the project cycle rather than the selection or design phases (Hall 1988:93-94, Schönwalder 1997:756).

Alternative development approaches emerged to challenge some mainstream development assumptions and placed popular empowerment as the central issue. In response to disillusionment with the failure of mainstream approaches to solve development problems, a search began for alternatives that would rectify the problems encountered in mainstream approaches by practitioners in both developing and developed countries (Brohman 1996:203).

This search resulted in a body of critical literature attacking the notions, methodologies and assumptions of traditional development approaches. Although its subject areas are often generally extremely diverse, they emphasise self-reliance and place greater stress (more so than neoliberalism) on the re-establishment of the community or the individual as the basic subject of development (Brown 2000:171, 173). Therefore empowerment strategies in alternative development emphasise redistributive measures, local small-scale projects, basic needs and human resources development through provision of public goods and services, movement away from growth-centred approaches to development towards more human-centred approaches, increased concern with participation and empowerment and increased interest in self-reliance and cooperation (Brohman 1996:219-220).

From the alternative development perspective, true popular participation implies involvement of a broad spectrum of the community in all phases of development

activities from project selection and design to ex-post evaluation. This means that people have autonomy from central government to make their own decisions and actively take initiatives in this process. Communities have some control over resources along with a degree of countervailing power against that of the state. Popular movements then have a democratic influence on other actors such as political institutions while strengthening their own integrity and organisational structures (Hall 1988:94, Schönwalder 1997:757).

Ideas of participation were later extended in the 1990s to include notions of empowerment. By this time community development had become a more dominant issue on the agenda (Wallerstein 1993, Onyx and Benton 1995, Christian 1998) and alternative development ideas had begun to mature and coalesce around principles such as equity, capability, sustainability, livelihood security, and responsible well-being (Chambers 1997). Empowerment had become a means as well as an end in itself (UNDP 1993) and was regarded as the answer to failing traditional approaches to development (McMichael 1996:256-7).

Empowerment by this time had begun to be viewed as both the politicisation and the summit of the alternative development process (Friedmann 1992:13). Alternative development is a process of empowerment in which the long-term goal is to reorganise the structures of power to make them more inclusive and people-centred. This is to be achieved by measures such as making civil society more capable, the state more responsive and the corporate sector more responsible. Furthermore, participation becomes a strategy in which empowerment is eventually attained (Bachrach and Botwinick 1992).

Writers within the alternative development framework stress the more subjective aspects of empowerment as prerequisites for successful development to take place. For instance Rahman (1993:17) argues that the failure of mainstream approaches to development highlights the fact that people's needs are both material and subjective or emotional. He argues that, contrary to the materialist approach adopted by the mainstream conceptualisation of basic needs as those for food, medical care, shelter, housing and education, humans are creative beings and possess a basic human need not just for survival but to fulfil their creative potential in ever newer ways (Rahman 1993:187-8). Consequently, although it may be difficult to quantify subjective needs, mainstream

approaches such as economics cannot ignore these needs and still claim to be dealing with the development of human beings. So development is not merely about delivering a material bundle of goods, but of creating a framework for the expression of people's creativity, enabling them to create their self-chosen bundle of goods, including cultural and intellectual pursuits, according to their own wishes (Rahman 1993:223).

Empowerment, from the alternative development perspective, at its most radical point is extremely endogenous and rooted in local knowledge and popular participation (Rahman 1993). In the context of subjective self-development, changes at the micro level can be obtained through the praxis process (Freire 1972) where people begin to participate in micro projects to advance their interests, in expectation of future changes at the macro level. Knowledge thus becomes the tool of empowerment. It is able to improve people's lives through access to material resources such as improved income, longer lives, better health and other critical resources that enable them to better invest in their future and exercise greater control over their destinies (World Bank 1999:2).

Moreover, it provides a source of power or resource for bargaining, for control, for some authority and capacity for action, whether overt or covert, whether for short or long periods. As the actors' knowledge increases, so does awareness of their capabilities to manoeuvre within given contexts (Long and Villarreal 1993:159). Thus with knowledge individuals are able to participate and gain "knowledge empowerment" to organise themselves for a more dignified existence (Kronenburg 1986:256, Carmen 1988:269). This is because participation provides opportunities for learning through interaction, increased perceptions, confronting one's emotions, cooperative problem definition and solving, and task performance (Lackey and Dershem 1992:223).

The emergence of empowerment as a dominant development focus also bears some relevance for the New Zealand context - an issue which is explored next.

#### **1.4.1 The Relevance of Alternative Development / Empowerment for New Zealand**

This section explores the value of empowerment or alternative development approaches for New Zealand.

From our viewpoint alternative development approaches contain two advantages, which make this an appropriate framework for addressing the New Zealand context. Firstly, despite the existence of extreme views such as those expressed above, alternative development is generally more revisionist. As such it seeks to address the failures of mainstream approaches to development, rather than discarding them altogether. This revision it has achieved successfully by redefining the goals of development, with definitions of growth including alternative strategies, as well as by establishing empowerment principles as part of the mainstream establishment, evident in United Nations principles (Friedmann 1992:6; Mayo and Craig 1995:2; Galjart 1995:13; Brohman 1996:33; Pieterse 1998:345).

In the New Zealand context, alternative approaches to development would encompass the fact that New Zealand has, to some extent, successfully adopted mainstream development strategies, while revising the weaknesses inherent in these approaches. Even within the context of high per capita income, growth in GDP per capita output and reasonable satisfaction of popular material needs, there can occur variations in the spread of material benefits as well as in the extent of social development within a given society (Doyal and Gough 1991:279). As shown in section 1.4.2 below, people with impairments are often those who encounter the unfavourable aspects of economic disparities in more advanced societies.

Furthermore, while there may be a generally good spread of material benefits across the entire society, there still remains the question of the intangibles of empowerment. While satisfaction of material needs such as food and shelter is important, for people with visual impairments other non-material needs characteristic of a post-acquisitive phase of development, such as independence, freedom and the right to choose, are also important. These require revision of some assumptions made by mainstream approaches to development adopted in developed countries (Rioux 2001:39).

For people with visual impairments in New Zealand, alternative development provides a useful point of departure for assessing their situation, as a consequence of its obsession with empowerment. This is because alternative development does indeed directly address the conditions of society's poorer (and consequently more vulnerable) sectors. It argues for their involvement in actions that will lead to their own empowerment. It

acknowledges their claims as human beings and as citizens, not just at the basic levels of livelihood and subsistence, but also at more advanced levels (Friedmann 1992:164). In the context of this research, these are claims for empowerment to control their lives, overcome their limitations and participate in employment and wider social processes.

Secondly, it presents a flexible theoretical approach to the issue of development. This contrasts with grand theoretical approaches, which are too formalistic and abstract, too dependent on aggregate data and too universal and general to be relevant to the everyday world of their would-be beneficiaries. Grand theories on one hand are distant from reality, neglectful of social relations and underlying processes that shape development, blind to variations that occur within societies and generally unmindful of disadvantaged social groups' views, desires, ambitions and wishes. Alternative development on the other hand is flexible and contextual. So, while the former present an imprecise and limited analytical device, the latter advocates inclusion of the contextuality of development contexts and experiences. It does this through its theoretical approaches as well as through practical aspects of development at both the subjective and objective levels (Brohman 1995:124-8; 1996:324).

Consequently, alternative development has a broad and universal focus, despite originating in response to problems in developing countries (Friedmann 1992:167-171). So in light of our concern with the issues of ACT and vocational empowerment for blind New Zealanders, the alternative development literature presents us with a platform on which to review the impact of technological changes on them so far.

Having explored the general literature on alternative development and empowerment, we now turn to look at the justification for an empowering approach to people with impairments.

#### **1.4.2 People with Impairments and the Need for Empowerment**

Most of the issues we have been unfolding have focused on development within whole countries, and on the gap between developed and developing countries. What is often absent from the debate is the fact that within any one country - developed or underdeveloped - there are certain categories which tend to be systematically overlooked. Arguably the most overlooked of all are people with impairments, including

the subject of our present investigation - the visually impaired. They are often marginalised by social, political and economic structures which prevent their participation. They are usually among the most disadvantaged, socially, economically and politically. In developing countries they frequently suffer more severely from lack of opportunities, resources and policy attention (UNDP 1993:27).

Approximately ten percent of the world's population experience some form of personal impairment and about 25 percent of people are ultimately affected by these impairments (Driedger 1991:2). While this affects developed and developing countries alike, the causes of impairments differ between industrialised nations and their less developed counterparts. In the former, the majority of impairments tend to be degenerative, i.e. caused by diseases associated with ageing. In the latter they mainly stem from malnutrition, disease and war.

People with impairments all over the world tend to suffer from poorer economic circumstances relative to their able-bodied counterparts, regardless of their society's level of development (Driedger 1989). Poverty and impairment exist in a mutually reinforcing relationship. Poor people often experience greater incidences of impairments and people who are impaired often become poorer because of their impairment (Massay and Maison-Halls 1993). For example, Black and Native Americans are twice as likely to be disabled as whites. Children of poor parents are 13 percent more likely to be mentally retarded than those of parents with middle and upper incomes (UNDP 1993:27). People with impairments also tend to belong to the lower strata of society in developed countries (Jenkins 1991).

Altogether this makes for a dismal picture of their situation on a global scale. According to *The New Internationalist*, in 1998 75 percent of disabled people lived in developing countries. One hundred million people had impairments caused by malnutrition. In some countries over 50 percent of these were caused by disease or war. Ninety-eight percent of disabled people in developing countries had no rehabilitation. Some 20 million people who needed wheelchairs were without them. In some countries disabled people were barred from standing for political office. In Canada and Australia 41 percent of disabled people received only primary education. In Britain and the United States 67 percent of disabled people aged 15 to 64 were unemployed (New Internationalist 1998:24).

People with impairments are a particularly vulnerable group to various forms of oppression, both historically and currently (Barnes and Mercer 1995:34). They encounter multiple sources of exclusion and disempowerment, ranging from personal repressive and discriminatory attitudes, particularly against disabled women (Driedger 1996), through socially institutionalised oppressive practices (Barnes 1991), to more global and cultural structures of disempowerment encountered in particular societies and cultures (Oliver 1989, 1990).

To compound their problems, people with impairments suffer from a series of biases which render them invisible with respect to the processes and benefits of development. Chambers (1983:11-27) pointed out that in the development process poorer, more vulnerable and less capable people are often obscured by a series of biases that occur when “rural tourists” or development practitioners make hurried visits to rural communities. These biases may occur for any number of reasons. Chief among the causes are: spatial influences; particular project emphases; gravitation toward people who are better off, more capable or more active; and those due to professional leanings or diplomatic practices which exclude the most needy. Such people lie in the invisible margins where, because of their poorer economic status, they are passed over by the development process.

Traditionally, people with impairments have been recipients of piecemeal social responses where their needs have been tacked on after general responses and development processes have been decided or implemented. In other words, social responses to their needs have often been retrofitted onto a development framework that has already been defined without them. This approach historically meant leaving them to society’s generosity and the ministrations of charitable organisations and altruistic impulses (described in Chapters 2 and 4). In developed societies, where the state has been the main arbitrator of social resources distribution, state involvement has meant delayed ad hoc responses that see people with impairments as a tiny subsector of the population, deserving welfare or health-driven responses. In developing countries, the experience has been largely similar, with impaired people left to the altruism of community organisations and NGOs in the absence of influential state institutions to distribute scarce economic resources. While charitable inputs have been remarkably

beneficial to their empowerment to an extent, these have apparently not been sufficient to secure their long-term empowerment.

Despite attempts by the United Nations to push impairment issues to the forefront of policy agendas, through the declaration of the Year of the Disabled in 1981, the Decade for People with Impairments (1983-1992) and the 1993 UN General Assembly's adoption of the Standard Rules on the Equalisation of Opportunities for Persons with Disabilities as a basic international guideline for their treatment, their problems lack intellectual and policy attention and action. This has been attributed to the low priority given to impairment issues on the development agenda of many governments and influential organisations such as the United Nations. Impairments are not recognised as a development problem and therefore, are ignored by policy-makers and largely untheorised by intellectuals (Harris-White 1996:1).

This thesis aims to expand the discussion of disabilities within development studies by focusing on a category within the general population who tend to be overlooked, both in academic literature and in the implementation of development policies. As we have described in section 1.4 above, current thrusts in development concern empowerment, improvement in quality of life, partnership and participation. These concerns are congruent with the needs of visually impaired people at the level of both intellectual discussion and policy initiatives. Although the thesis does not intend to address the whole field of disability, by focusing on one particular subset it may be able to draw out some descriptive generalisations that may be applicable to other forms of impairment as well. We thus turn to the discussion of empowerment in the context of people with visual impairment for the remainder of this chapter.

## **1.5 The Empowerment Debate and People with Visual Impairments**

The following section sets out the context in which empowerment is assessed throughout the remainder of this thesis. It describes the various issues surrounding the notion of empowerment in an attempt to equip us with theoretical models drawn from the literature.

These analytical models were not conceived with impairment in mind, but they provide useful tools which can be applied to disability in general and blindness in particular. We therefore sketch the models, and indicate in a preliminary way how they are relevant to the blind and their experiences with ACT.

A second task involves describing how empowerment has been conceptualised within the academic field of disability studies and by disability activists. Again, we focus these general disability studies approaches (i.e. the medical and social models) on the substantive issues of visual impairment and ACT.

### **1.5.1 Defining Empowerment**

So far in the discussion the term “empowerment” has remained vague and undefined. This is because, although it is a desirable objective of development studies and social sciences in general, its definition is still under debate (Servian 1996, Weissberg 1999), its meaning largely dependent on ideas and conceptions of power (see Appendix 1). This section outlines our ideas of empowerment and shows how it applies to our thesis question.

As we have outlined in the alternative development literature (section 1.4, p.9), empowerment carries the general understanding of people gaining control of their lives and circumstances. Thus it also implies them gaining autonomy, independence and mastery. One of the more accepted definitions of empowerment would be: a process by which individuals gain mastery and control over their lives, and a critical understanding of the environment in which they live (Rappaport 1984, Rappaport 1987, Zimmerman 1990, Zimmerman et al. 1992, Weissberg 1999).

This notion of empowerment implies visually impaired people attaining the capacity to be included in society with full participation in the systems of society however they as individuals wish. In other words, it means expanding their power and ability to engage in society as fully as anyone in the context of information access and employment.

Our chief concern in this study is with individual and personal empowerment. This exclusive focus is important because although alternative development does advocate a focus on the individual as the subject of development, so far there have been relatively few studies which have focused on the individual as a unit of analysis in exploring the

process of empowerment. Apart from Kieffer (1981, 1984), Rappaport and Maton (1984), Zimmerman and Rappaport (1988) and Christian (1998), who have exclusively explored the individual's understanding of empowerment, the majority of studies on empowerment have focused on individuals as units of observation for community or group empowerment processes. Moreover, studies of empowerment have not focused on people with visual impairment and its consequences for participation in development processes.

At the individual level empowerment apparently operates at three distinct levels: (1) the intrapersonal, (2) the interactional, and (3) the behavioural (Zimmerman et al. 1992:708). The intrapersonal component refers to how people think about their capacity to influence social and political systems, and psychological issues such as perceived control, self-efficacy and motivation are important. The interactional component refers to the transactions between people and environments that enable the individual to successfully master social or political systems. It includes knowledge about the resources, awareness and political competence needed to achieve goals. The behavioural component refers to the specific actions one takes to exercise influence on the social and political environment through participation in community organisations and activities.

In this study we will be exploring elements of all three levels of personal empowerment. However because we have restricted ourselves to vocational empowerment we will explore these issues in that very limited context instead of wider social processes such as politics. We will look briefly at how ACT affects its users' capacity to participate in informational environments, from their personal perspectives. Regarding the interactional, we will look at how ACT affects their task performance and personal functioning in relation to their informational environments. In terms of the behavioural, we will look at how they maximise its potential in relation to their access to work, education and training.

After reviewing the empowerment literature it is evident that there are a number of features central to the idea of empowerment: (a) the reduction of powerlessness (Solomon 1976, O'Sullivan et al. 1984); (b) the gaining, developing, seizing, enabling or giving of power; (c) the ability to influence people, organisations and environments affecting one's life; and (d) attaining control over one's life and participation in

community life (Kieffer 1981, Rappaport 1981, Kieffer 1984, Rappaport 1984, Zimmerman and Rappaport 1988, Zimmerman et al. 1992, Staples 1990, Sullivan 1999, Zenz 2000). Of these four dimensions, the first, second and fourth aspects of empowerment, (a), (b) and (d), are most relevant to our present discussion.

With regard to reduction of powerlessness (a), it can be argued that the nature of visual impairment makes visually impaired people relatively powerless in relation to information access and other areas. In a highly visual world where the overwhelming majority of information is transmitted in visual images, blind and visually impaired people experience significant problems in accessing, processing, storing and retrieving information. Most severely visually impaired people experience some difficulties with communication, mobility and the performance of a number of activities of daily living, as well as, with the social, psychological and vocational adjustment required by a loss in visual function (Newbold 1987, LaGrow 1992). Applications of ACT are important for reducing some of these disadvantages, such as communication, information access, mobility, dependence and other negative psychological effects of their impairments.

Gaining power (b) and attaining control over one's life and participation in community life (d) are also relevant. The negative effects of visual impairment can prevent people from accessing or maximising other empowering resources such as education and employment. Undoubtedly power and empowerment stems from access to a variety of resources, both material and non-material (Zenz 2000, Poggi 2001:16-19), so that it is important for the blind person to gain access to resources. It is in this context that employment and other vocational resources such as education will be important in this thesis.

At this point it is important to note that the term "resources" as used in this study refers both to general social resources such as wealth, status and rulership (Poggi 2001:18-19) and to other more immediate resources such as defensible space or places to live and carry out personal activities such as sleeping, surplus time, education, knowledge and skills and information among others (Friedmann 1992:67-69). For the blind individual specialised technologies such as talking computers or other forms of ACT are also viewed as immediate essential resources.

Access to such resources is important for blind people's own personal independent empowerment and when wielding power over others. This is because the nature of the impairment often means that they are disadvantaged in relation to information resources. These problems sometimes mean that without assistance blind people are often unable to function adequately (exercise power to do things) in everyday situations. So in our present case, blind New Zealanders must gain access to empowering resources such as ACT, which can further increase their access to wider social resources such as wealth through working and employment.

With respect to power over situations, where power is manifested in individual capacity to influence other people's action, their level of relative dependence may determine blind individuals' situation. Relative dependence or independence is further determined by access to resources in relation to others. If they have fewer resources in relation to others then they are less powerful and more dependent on others who may possess the resources critical to their survival or comfort. Conversely, where they have more resources relative to others they are able to exert more power over others (Blood and Wolfe 1960:28; Emerson in Scott 2001:138). For example, to gain independence through a talking computer, a blind person becomes newly dependent on key professionals who may be available to help with accessing and learning how to use this kind of technology. Due to the funding structure in New Zealand, official assessments by technology assessors are needed to ensure that blind people meet the funding criteria. It may be, however, that poor personal relationships between blind individuals and specific professionals may impede their quest for assistive technology. In situations where blind people have access to other resources they may access ACT regardless of the state of the interpersonal relationship. It is therefore important that blind individuals access *empowering* resources. Such resources may stem directly from ACT, for example information, or indirectly, in the form of other resources such as wealth or status that derive from employment or other forms of work. These are important to ensure a favourable status in relation to others.

Apart from the "hard" or more tangible aspect that resources represent, the visually impaired individual's personal, subjective and psychological characteristics are also important. At this subjective level power and powerlessness are self-perpetuating. Thus

people with low self-efficacy<sup>2</sup> possess attitudes and engage in behaviours that do not result in successful outcomes, while the reverse is true for people with high levels of self-efficacy (Bandura 1995:3-11). People who have been subjected to powerlessness tend to make psychological adaptation to their powerless state, developing feelings of inadequacy, low self-esteem, self-deprecation, apathy and hopelessness (Gaventa 1980:16). This state of hopelessness and low self-esteem leads to people acting in a way that does not lead to successful outcomes, as people who have low expectations of their capabilities shy away from difficult tasks which they see as threats; they possess low aspirations and weak commitment to the goals they choose to pursue; when faced with difficult tasks, they dwell on their personal deficiencies, the obstacles they will encounter and adverse outcomes rather than on how they can successfully overcome these; they give up easily; and they lose faith in their capacity to succeed (Bandura 1995:16).

In contrast, people who feel empowered make choices that will increase their power. For instance, they engage in activities that increase their access to power resources. Gerber et al. (1992), in a study of highly and moderately successful adults with dyslexia noted that the highly successful people exhibited more positive attitudes to controlling their work situations. Furthermore, the more successful they were, the more they were likely to continue succeeding. Zimmerman (1995:227-8) noted that self-efficacy was a key determinant of students' ability to maximise educational opportunities. Hackett (1995) identified self-efficacy as a factor in successful career choice outcomes.

For empowerment at the personal level to take place, people must firstly become personally and subjectively empowered, then secondly help others to become empowered. In the first case empowerment requires a re-conceptualisation of traditional notions of power, from those of domination of one person over another to those built on self-respect and respect for others. In the second place it requires promoting empowerment for other people and acting with them to transform disempowering circumstances (Freire 1972:31, Irwin 1996:9-11).

For people to become involved in their social environments they must also develop participatory or political competence. Participatory competence occurs where they

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<sup>2</sup> Self-efficacy, or belief in one's capabilities to organise and execute the courses of action required to manage prospective situations, becomes an important determinant of power or powerlessness.

develop a personal attitude or sense of self that promotes active social involvement, knowledge and capacity for critical analysis of the social and political systems which define their environment, ability to develop action strategies and cultivate resources to attain their goals, and finally the capacity to act effectively with others to define and attain goals. Participatory competence then enables them to exercise power in a social context (Kieffer 1981:25).

In this instance blind individuals must gain a critical understanding and awareness of the nature of impairment and its consequences for their vocational performance and of their capacity to change it through action (Gerber et al. 1996, Zenz 2000:8). For blind New Zealanders this implies action, whether individually or jointly, to redress any negative situation encountered as a result of their impairment. At the individual personal level they may need to harness ACT's empowering potential instead of simply accepting the limitations imposed by blindness. Again, because we have restricted ourselves to vocational contexts, we will consider blind ACT users' participation in forms of work rather than in wider social processes.

Having outlined the general models of power that are relevant for our present question, we need to look at how empowerment debates have treated the issue of impairment. This debate is important because this dimension is what makes our particular group of people different from other marginalised groups. The next section examines this aspect of the theoretical debate.

### **1.5.2 Empowerment in the Impairment Dimension: The Disability Studies Debate**

Up to this point in the chapter we have been setting out a generic model of empowerment that is broadly applicable to all disempowered people. In practice, however, it has not often been applied to blind and visually impaired people. One of our tasks in the present thesis is to show the relevance of general analytical models of empowerment to this case. Before doing so, though, it is necessary to bring into the discussion another line of theory, developed by theorists within the specialist academic field of disability studies, such as Michael Oliver, working in close conjunction with activists in the disability rights movement.

Unlike the generalist models, this one was designed specifically with disability in mind. This approach is based on a distinction - a binary opposition - between what its proponents term the “medical model” and the “social model” of disability. Throughout the literature on this subject, the medical model is regularly condemned and the social model regularly endorsed.

The remainder of this chapter first explains the way in which the distinction between the medical and social models is theorised by disability activists and their academic allies in the field of disability studies, then suggests that the binary opposition they create is oversimplistic: to understand the specifics of the empowerment process for blind and visually impaired people, it is necessary to include both sides of the argument.

The notion of a “medical model” has been conceptualised by disability studies writers to refer to traditional interventions to address the needs of people with impairments. It is often used to cover things which are not, strictly speaking, “medical”. In these writers’ terms, talking computers come under the rubric of the medical model, even though they have nothing to do with medicine. This problem can be overcome by regarding ACT as a form of prosthesis, like an artificial limb or a hearing aid. Giving a blind person a scanner is not literally a medical intervention, but is analogous to one. Therefore, for our present purposes we will place it in the context of the medical model.

The medical model, according to the social model, sees disadvantages faced by impaired people as stemming from the impairment itself; these can be rectified only by treatment or cure (Brisenden 1998:24). Worse still, this model has contributed to the development of perceptions of disability as an abnormality because it links disability with disease and pathology. It also defines disability and the person who experiences it in medical or clinical terms, and further assumes that having a disabling condition inherently means isolation from the societal mainstream, usually with psychosocially pathological consequences, which require professional treatment. Disabled people are regarded as different, in their appearance, cognitive processes, responses and action, and their situations as either tragic or ennobling (Sullivan 1991:256-7).

The social model, in contrast, shifts the focus from impairment onto social, environmental and attitudinal barriers that disempower people with impairments. It

argues that a physical or mental impairment is not inherently handicapping but rather becomes so as the result of prejudice and political disadvantage or disabling environments (Oliver 1996b). These writers identify a series of structural factors which result in the “construction” of disability and the consequent oppression of people who fall into the confines of that construct.

Leading proponents of this approach such as Oliver (1996b), borrowing from the Union of the Physically Impaired Against Segregation (UPIAS) in Britain, argue that it is society that disables impaired people. Disability is not a feature of the individuals but is imposed on top of the impairment by the way in which they are unnecessarily isolated and excluded from full participation in society. “Disabled” people are therefore an oppressed group in society. In an attempt to make a distinction between the physical impairment and the social situation of people with impairment, called “disability”, impairment is defined as lacking all or part of a limb, or having a defective limb, organism or mechanism of the body. Disability is defined as the disadvantage or restriction of activity caused by a contemporary social organisation that takes little or no account of people who have impairments and thus excludes them from participation in the mainstream of social activities. Disability is therefore a particular form of social oppression (Oliver 1996b:22).

It is important at this point to note that our discussion here is restricted to impairment. This helps avoid the pitfalls of the debate within disability studies regarding definitions of impairment, disability and handicap. Despite differences in opinion between the World Health Organisation (WHO) and the social model camp, they generally agree on the definition of impairment as relating to a reduction, impairment or loss in bodily limb, organ or mental faculty (Crow 1996:56). Thus when the social model writers refer to “disabilities” or “disabled” there is an underlying assumption that these people already have some form of impairment. In order to avoid confusion we have substituted “impairment” or “impaired” whenever they use “disability” or “disabled”.

The definition of visual impairment adopted in this study requires the individual to possess a defect or anomaly in the visual system or the bony orbit, eyelids, eye and its parts, or the portion of the brain involved in the act of seeing (LaGrow 1992:1). However, because some people can have a visual impairment that does not significantly

affect their visual functioning, our study participants had to be so severely impaired as to be members of the Royal New Zealand Foundation of the Blind (RNZFB). This meant the individual possessed either a visual acuity not exceeding 6/24 in the better eye after correction, or a visual field limited to 20 degrees or less in the widest diameter. Within this group those who reported that they had no sight were referred to as blind in this study. Moreover the terms “visually impaired” or “visual impairments” were used interchangeably. In the case of those with multiple impairments, visual impairment was the primary one.

Returning to the current debate, the social model thus results in a total, almost irreconcilable difference in understanding, in conceptualising, and ultimately in policy response to, the issue of impairments. For instance, Oliver (1996b:34), in comparing the models, points out that whereas the medical model is rooted in personal tragedy theories, its social counterpart is rooted in social oppression theory. This correspondingly results in the problem being defined as a personal problem by the former and a social problem by the latter. Therefore, the responses offered are individual treatment for the former and social action for the latter. As a consequence of their focus their empowerment approaches, strategies and emphases also differ. The medical model results in medicalisation, while the social counterpart results in self-help. The former gives rise to professional dominance while the latter results in individual and collective responsibility. Similarly, the former is dependent on expertise, while the latter promotes experience. The former evokes adjustment while the latter emphasises affirmation. The former promotes individual identity, the latter collective identity. The first attacks prejudice and attitudes, the second addresses discrimination (especially institutionalised discrimination) and behaviours. The first is concerned with provision of care, while the second emphasises rights of people with impairments. The former results in control of people with impairments, the latter in choice and autonomy. The framework in which the needs of people with impairments are addressed in the former case is policy, while the latter involves politics. So from the latter’s perspective, an exclusive or primary focus on individual empowerment is a violation of the spirit of the collective political disability rights movement that is seeking social change (Neath and Schriener 1998:217).

As the social model approach to the problem of disability sees disability or disempowerment arising from socio-cultural constructs, for instance the social or public

policy of the society in which the impaired people live, so must efforts to redress their issues focus on those external circumstances that disempower and disable them (Oliver 1989:6, Oliver 1990:22, 78-9). Barnes (1991:26) argues that discrimination is rooted in economic, cultural and philosophical foundations, which lead to its deep entrenchment in institutions in society. However, as institutional discrimination, like the rest of reality, is socially created, it can be eliminated (Barnes 1991:234).

Among other important prerequisites, empowerment requires a rethinking of public policy. This would mean moving away from individualised approaches to those that accept the near universality of disability as well as the social implications of bio-medical aspects of impairments (Zola 1989:420).

While some evidence exists that supports the social model, the model suffers from some deficiencies that threaten its usefulness to us and make it unsatisfactory on its own. The following section briefly explains these.

### **1.5.2.1 Criticisms of the Social Model of Disability**

In section 1.5.2 we set out the distinction between the medical and social models. Now, criticising this theoretical dichotomy, we show how by itself it is not so useful for our present question. Although the social model has been relatively successful as a political slogan in Britain (Shakespeare and Watson 1997:299; 2002:3), it ignores the reality of impairment and therefore suffers from a number of flaws that threaten its relevance for people with visual impairments.

Although it is very good for isolating environmental factors that limit the performance of these individuals, the social model breaks down in relation to capturing experience of impairment because it creates an unsustainable division between disability and impairment where it treats the disability as public and impairment as private. It overlooks whole areas of disability experience because they are relegated to the private sphere and risks alienating people who feel that their private experiences are being denied or ignored (Thomas 2001:57). Furthermore, while it appears to work well on a large scale in terms of addressing discriminatory social structures and demonstrating the need for civil rights legislation, it is not as useful at the personal level as it lacks the capacity to fully integrate and represent the range of experiences of “disabled” individuals (Crow 1996:56).

By ignoring the range and variations in impairment experiences it disregards their unmistakably salient impact at both the individual and psychological levels as well as at the social and structural levels. For instance, visual impairments present the individual with difficulties in social encounters, such as problems observing body language, facial expressions and other forms of non-verbal communications, which are inextricably linked with this form of impairment and cannot be overcome by removal of social barriers (Newbold 1987:13; French 1993:18-19; Shakespeare and Watson 2002:18).

This disregard of the impairment dimension means that the social model also ignores and inadvertently devalues investigation into the possible role of mitigating intervention measures (Crow 1996:66, Shakespeare 1999:684). For instance, ACT is a mitigating intervention that is aimed at compensating for visually impaired people's inability to access or see material accessible with normal vision. Ignoring the reality of visual impairments runs the risk of aborting this kind of beneficial intervention that reduces or eliminates their negative effects (Shakespeare and Watson 2002:12-13).

In addition, problems with the social model are compounded by its tendency to assume a similarity in the experiences of groups of people with different impairments. Although the social model purports to be a general theory of disability with relevance to all major disability types (Finkelstein 1981:58, Oliver 1996b:23-25), it has tended to emphasise certain kinds of barriers, particularly those which obstruct people with mobility impairments, at the expense of other kinds of barriers for those with other kinds of impairments (Marks 1999:88). It also ignores intervening factors such as gender, class, race, culture and other complex variables, which impinge on the experiences of people with impairments (Marks 1999:87).

Having explained the social model's weakness, we now explore how its usefulness can be harnessed for the purposes of our thesis when combined with the medical model - the very model it appears to disregard. This idea is argued in the next section where we look at reconciling the models of empowerment.

### **1.5.3 Reconciling the Models of Empowerment**

At this point in the chapter we show how the various models discussed so far relate to each other. Our first task in this section is to show how the debate in disability studies

can be reconciled for our study's purposes. Our second task is to briefly explain the implications of this reconciled model for the generalist empowerment models discussed in section 1.4 above.

Having examined the social model debate above, we believe that despite its apparent antagonism towards the traditional medical model, in reality the two approaches are complementary and relevant when considering visual impairment and ACT. The medical model, as described from the social model viewpoint, sees the problem resting in the individual. In the case of accessing information the problem is believed to result from individuals' inability to access most of the information available to others because they cannot see regular printed material and most of the information they need to access is available in a visual format. The social model perspective sees the problem in much the same way, i.e. individuals are disadvantaged by the fact that most of the information they need to access is available in a print format and they are unable to access the format. The difference is that one model sees the problem existing in the individuals' inability to see while the other believes it lies in society's failure to provide information in a format they can access.

This problem can be avoided by recognising that this disempowerment stems from both the visual impairment and the exacerbating barriers and restrictions, which occur because of the interaction between visually impaired people and the social environment (Setterlund and Abbott 1995:280-3, Beatson 1996:16-18). Therefore, empowerment attempts must engage personal aspects of impairment for such people, as well as those external factors which limit their empowerment.

In reality there is nothing to prevent efforts both to effect social change and to prevent or minimise the effects of impairment from being implemented concurrently (Shakespeare and Watson 2002:15). So for instance, blind technology users need assistive technology on the one hand, and on the other they need websites to be accessible for this technology. Both medical and social model approaches are adopted as analytical frameworks in this study. The medical approach is considered when dealing with the optimistic aspects of ACT's impact and the social model is useful for analysing the pessimistic outlook on the same phenomenon.

The overall value of the disability studies debate is that it highlights the need for attempts at empowerment to factor the unique situation and experiences of people with impairments into development strategies. This particular demand is compatible with alternative development approaches that stress the role of individuals as crucial candidates and participants in development processes.

Although the generic definition of empowerment as provided above is still useful, there needs to be a deepening of the notion of empowerment to more appropriately include the experience of people with visual and other impairments. The preceding debate within the disability movement, when incorporated into the development studies discussion of their empowerment, broadens this discussion to include the unique dimension of impairment that singles them out from other traditionally disenfranchised groups of people. This in turn is important because it sensitises generalist empowerment approaches to the special needs and situations of people with visual impairments. As mentioned previously, this is one of the main contributions of this thesis to academic discussion.

## **1.6 Summary and Conclusion**

Having set the task of finding out whether ACT was contributing to the vocational empowerment of blind and visually impaired New Zealanders, this chapter laid out the major background issues influencing this research problem. It firstly located the study in the discussion surrounding new technology and development, noting that the question of ACT's impact was part of the debate in which technology transforms society, while technology itself is transformed and determined by underlying social factors.

It also argued that the reorientation of development thinking courtesy of alternative development has permitted the emergence of the idea of empowerment for marginalised people. This allowed us to focus on the personal, subjective, unique aspects of empowerment for people with impairments - a task attempted in the disability studies debate. This debate both demonstrates a need for their special circumstances to be considered as well as sensitising generalist approaches to empowerment to their unique situations.

To date we have outlined some of the major debates in development studies and sociology literature. We have discussed the relevance of some of the general analytical models of empowerment and of the theoretical models developed within disability studies. We have also suggested that concepts which are often presented as opposites can be reconciled when studying a substantive instance of disempowerment such as blindness. We have thus set out the basic analytical context within which our research was conducted.

Before getting on to that research, however, a little further stage-setting is necessary. Having decided that empowerment is a desirable goal for visually impaired individuals, we are required to determine who is responsible for this empowerment. So in Chapters 2 and 3 we turn from theoretical models to the social actors such as the state, NGOs and social movements, which have traditionally been viewed as putting empowerment into practice, as we try to understand who should do the empowering.

# **CHAPTER 2: EMPOWERMENT STRATEGIES: THE ROLES OF THE STATE, NGOS AND SOCIAL MOVEMENTS**

## **2.1 Introduction**

Having discussed the importance of empowerment for people with impairments in Chapter 1, we need to determine who should do the empowering of the visually impaired individual. This issue has received significant attention in the literature and our task is to outline the major responses that have been offered so far. The next two chapters continue to set the stage for the thesis by outlining the broad context of our current research question. The material covered in Chapters 2 and 3 is then brought to bear on our description of the New Zealand background in Chapter 4.

This chapter outlines the broad global context in which the computer revolution in New Zealand has taken place. It briefly describes, in general terms, the major developments that were taking place overseas, changing political paradigms (the emergence of neoliberalism), the role of NGOs, the disability rights movement, and discourses surrounding development in general and the disability movement in particular.

In an effort to answer the question of who should do the empowering of visually impaired people, our main task is to describe the positive contributions and relative weaknesses of empowerment approaches. We will look at three broad levels: the macro, meso (or in-between) and the micro levels.

At the macro level we will look at broad-based institutions such as the state (section 2.2). At the meso level we will look at NGOs and their role as go-betweens between the state and the individual (section 2.3). For the sake of ease and efficiency we place the disability social movement in the context of grassroots or local micro-level movements (section 2.4). In section 2.5 we summarise and conclude the chapter.

The following section begins the discussion by describing the role of macro-level institutions like the state from a theoretical standpoint.

## **2.2 The State and Empowerment of People with Impairments**

To date, the state has played a key role in the mainstream development processes that have dominated approaches to empowerment of the general population, especially in developed country contexts. The state's role has changed however with the major shifts in ideology that have occurred since World War II and its importance still remains open to debate. We provide a brief description of the transition from the welfare to the neoliberalist state as the backdrop against which changes in strategies for empowerment of people with impairment are considered.

Within mainstream approaches to development, there was a strong emphasis on state-led empowerment which found expression in Keynesian welfare economics from the right and socialism from the left prior to and immediately after World War II. The state and public agencies were believed to be capable of managing the economy, regulating commercial and industrial activities, subsidising incomes, providing a wide range of human services, managing sizeable social security funds and even owning and operating large industrial enterprises (Midgley 1991:9).

During this period public administration was characterised largely by its adoption of rational<sup>3</sup> or public choice theory. This resulted in an approach to public management that emphasised administrative rationality and efficiency, and in the design of public agencies as largely closed systems, featuring a single controlling executive with substantial authority and operating in top-down fashion. The approach to government was chiefly concerned with direct delivery of services through existing or newly authorised agencies. Public policy and administration were concerned with designing and implementing policies focused on a single politically defined objective and there was very little room for citizens' involvement (Denhardt and Denhardt 2003:10-12, 26).

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<sup>3</sup> Rational behaviour is defined as the maximisation of individual utility under constraints. This implies that people form expectations on the basis of all available information (Alesina 1994:39). Based on this assumption public choice theory assumes that the individual decision-maker is rational, self-interested and will seek to maximise his or her own utilities. According to this view, individuals seek the greatest benefit (at the least cost) in any decision-making situation, acting to "always seek the biggest possible benefits and the least costs" in their decisions. People are basically egoistic, self-regarding and instrumental in their behaviour (Denhardt and Denhardt 2003:10).

By the mid-1970s the welfare state's intervention was being threatened by a range of economic, global and demographic developments that were limiting the capacity of governments to satisfy rising popular expectations (Midgley 1991:10, Glennerster 1991:163, Schuurman 1993:11). Similarly, the socialist approach to welfare had not resulted in general popular empowerment, but had become so isolated, controlled and rigid that it left no room for criticism of government policies, or for initiatives from below (Wertheim 1992:267).

The rise of neoliberalism in the 1970s challenged the state's role as the key player in the distribution of social resources (Midgley 1991:12-14, Brohman 1996:27). It launched a series of criticisms of the welfare state in a variety of areas, of which several were key: it weakened traditional values of hard work, responsibility and sobriety. It led to a breakdown in mutual obligations between groups and took away traditional sources of authority and responsibility from the family by taking too much responsibility to itself and its group of professionals. Moreover, it created a large and inefficient bureaucratic state welfare apparatus that encouraged dependency, undermined self-reliance and independence and fostered a culture of poverty. Finally, it was susceptible to totalitarianism and invasive because it forced citizens to pay taxes, provided monopolistic services and intruded into their private lives through its army of professionals (Loney et al. 1991:3, Stoesz and Midgley 1991:31-33).

Instead of state-led initiatives, neoliberalism prescribed individual and political freedoms and that the state should be restricted to the barest minimum of preserving peace and order (Leftwich 1994:369). Within this minimalist state individuals interact with the market and their empowerment is determined by their access to resources (UNDP 1993). The market thus becomes the dominant distributor of social resources because it produces rational behaviour that efficiently reflects market signals based on principles of scarcity and choice. Neoliberalism, therefore, concerns itself with increasing the efficiency of market signals as a guide to improved allocation of resources through removing distortions and establishing the correct set of relative prices that will permit efficient long-run growth (Griffin 1989:26). Within this new minimalist role, the state is driven to adopt a market model and operate more like a private sector entity in terms of emphasising productivity, innovation, accountability and efficiency. The state privatises

or contracts out many of the services it provided under the welfare state (Denhardt and Denhardt 2003:13-14).

Much of the responsibility for popular empowerment is removed from the state onto the shoulders of other social institutions in the community such as the informal sector, the family, the non-profit and voluntary sector and the proprietary commercial sector as the basis of welfare provision. Here self-help becomes an important feature of empowerment strategies. This necessitates revitalising mediating structures such as the church, NGOs, the neighbourhood and the family.

As opposed to big business and government, the family should be directly responsible for the economic and social welfare of its members (Minford 1991:81). The voluntary sector embodies traditional notions such as neighbourliness, self-reliance and community solidarity and consequently should be allowed to assist with empowering people (Stoesz and Midgley 1991:34-9). It shares the cost and responsibility for provision of public sector goods and services (Meyer 1996:470), ensures sustainability, cost reduction and community inclusion through self-help measures and targets the poor and most vulnerable (Mayo and Craig 1995:4). For their part, commercial entities can assist with popular empowerment through partnerships with civil society to compensate for the shortfalls in services delivery that occur in the face of state retreat and market inefficiencies. This is because businesses can provide, among other things, financial resources and some expertise, while civil society organisations bring a critical range of community empowering resources to the partnership (Ashman 2001:63).

Despite its challenge to older mainstream approaches, neoliberalism has itself sustained criticism on a range of points. Firstly, as a consequence of its continued dependence on some of the “monoeconomic” assumptions of the older grand theories, it retains some of their top-down approaches to empowerment (Brohman 1995:126). Secondly, although neoliberalism acknowledges that intangibles such as participation, empowerment, freedom and democracy are valuable in themselves, it also continues to promote an instrumentalism in the human development or capabilities approach (Anand and Ravallion 1993:140, Griffin 2000:19-20).

Neoliberalism has thus led to the enactment of strategies, such as redistribution with growth, that do not really represent a break from the grand theory approach, but represent an extension to include distribution of the benefits of growth (Brohman 1996:205). Nor does it prove particularly empowering, in terms of the transfer of political power through decentralisation and devolution of power to enhance people's involvement in government or reduce their alienation from the political process. Instead its espousal of traditionalism, strong leadership and order (especially from the radical right) has led to governments strengthening the central state, placing more emphasis on domestic security, centralising political control and expanding military power (Midgley 1991:12). Furthermore, neoliberalism is more detrimental to popular empowerment than modernisation, especially in developing countries, as although ideologically it resembles modernisation, it offers less since it minimises the state's role in development (Schuurman 1993:12).

Having outlined some of these concerns relating to the state's role we now turn to look at its impact and implications for people with impairments.

### **2.2.1 The Transition to Neoliberalism and People with Impairments**

While people with impairments do benefit from the positive effects of macro policies as the general population does, it appears that initiatives informed by both welfare and neoliberalist state policies generate a paradox<sup>4</sup> of empowerment, at the same time both empowering and disempowering impaired people (Cheater 1999:10, Yon 1999:40). In this section we briefly outline the impact of state-initiated empowerment on people with impairments and relate some aspects that are relevant to those people with visual impairments.

We must point out here that, in contrast to the dramatic changes that the shift from the welfare to neoliberalist mode implied for the general population, for people with impairments much of their interaction with the state has been shaped by a continued paternalistic, welfare-based type approach. We can also surmise that this approach has

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<sup>4</sup> Paradoxes arise when macro approaches are implemented that overlook both the peculiarities of different groups' situations in relation to development processes and the multidimensional and complex nature of empowerment (Bean 1989:24-8; Todd 1992:12; Kirmsundsdottir 1999:52-4).

shielded them from the full brunt of neoliberalist policies endured by some developed countries. The following two sections look at specific strategies to harness ACT's empowering potential and criticisms of state interventionist approaches.

### **2.2.1.1 The Transition to Neoliberalism: Harnessing ACT's Potential**

As we noted in section 2.2.1 above, in more developed countries the state has taken an active role in attending to the needs of people with impairments. This section considers some of its attempts at direct empowerment of such people through direct financial transfer payments and through facilitating employment.

Under welfare provision the state initiated a series of direct financial payments to people with impairments to afford them a level of financial and personal empowerment. First, it gave many impaired people who could not find paid employment a state pension. Second, the state subsidised disability NGOs. Third, it paid for adaptive equipment for people with impairments. Fourth, it paid for personal care services such as home help. In this way the state engaged in indirect empowerment efforts as it invested money in the rehabilitation or habilitation arenas.

Apart from direct financial transfers, governments have also intervened with some measures to encourage employment through access to and use of computer technology. In Sweden, where a policy of full employment has vigorously accompanied the welfare state model (Persson 1990), the government adopted an interventionist role in attempting to ensure that people with impairments were placed in employment as quickly as possible. It tried to accommodate their needs by designing the technology for the individual as well as the job at the worksite (Breding and Keijer 1992). This accommodation was accompanied by a wage subsidy to the employer for a period of twelve months. These subsidies were granted for specialist consultations, buying and renting of equipment, or for other accommodations necessary for the individual to perform (Michailakis 2001:481-2).

Other developed countries such as France, Germany, Austria and Denmark also instituted policies that included payment for vocational rehabilitation, education and adaptive technology; personal financial benefits; public quota law; public subsidy of salaries; reimbursement for training; adaptive technologies and environmental

modification. (Scadden 1992:49). Still others such as Japan developed a reward and penalty system of grants, quotas and levies. Grants were provided to aid in the purchasing of new access technology for impaired employees. Under the quota and levy systems, private firms were required to employ people with impairments for up to 1.6 percent of their workforce. If this quota was not met, they were required to pay a levy corresponding to the shortfall. This income was then used to fund grants (Scadden 1992).

The United States presents an outstanding example of government intervention to create a legislative framework to assist with employment access for people with visual impairment. In the face of rapid computerisation in the late 1980s the US Federal Government, through a series of legislation ranging from the Rehabilitation Act 1973 to the Americans with Disabilities Act 1990 (ADA), tried to ensure that people with impairments could gain access to office and electronic equipment. It also introduced detailed provisions aimed at preventing discriminatory practices as well as promoting the involvement and participation of impaired people in four main areas: employment, public services including transportation, private sector accommodation, and services and telecommunications (Ladner 1989; Bynoe et al. 1991:33-36; Cunningham and Coombs 1997).

It is also important to note that this kind of financial and policy support was maintained through the transition to neoliberalism. Although, as we shall see in Chapter 4, the state was extensively restructured under the neoliberalist policies of the 1980s and 1990s, the New Zealand government maintained some of its commitment to economic empowerment of its impaired citizens. In the area of policy and practice the government promoted policies and legislation that aimed to help people to work in both the public and private sectors (Welham 1997). Likewise, although the management and structure of funding underwent some changes, the state also maintained its financial obligations. Consequently under both welfare and neoliberalist policies people with impairments and especially blind New Zealanders continued to receive direct transfer payments such as invalids' benefits, pensions, funding for their organisations and most importantly funding for ACT.

Despite the state's intervention, it appears that people with impairments and the visually impaired still faced significant disadvantages. For instance, unemployment among people with impairments in developed countries has remained high (Scadden 1992:52, Wehman 1998). The next section explores the ways in which state-initiated strategies in more developed countries have negatively affected people with impairments.

### **2.2.1.2 The Transition to Neoliberalism: Disempowering the Impaired**

State-initiated approaches to empowerment of people with impairments appear to have been only partially successful. In the absence of literature relating to the specific instance of ACT and the visually impaired, in this section we look at the wider literature critiquing welfare and neoliberalist state approaches.

Apart from its financial contributions, the welfare approach led the state to offer some services, namely providing a legislative framework as well as segregating individuals into specialist organisations (Barnes 1991:20). Much of the dissatisfaction expressed by British writers seems to coalesce around these issues in particular. They argue that these provisions also led to dependence and disempowerment. Firstly, this approach failed to provide impaired people with all the services they needed. Where they may have received these services, it reinforced or created dependency (Oliver 1989:20, Coote 1991:3-4). For instance, segregated schools emphasised the sickness aspects of children's impairments, did not prepare them to function adequately in general social environments and were educationally and socially divisive (Oliver 1996b:64, Hughes 2001:29).

Secondly, the welfare approach resulted in legislation that both infringed human rights and restricted impaired people's choices. For example, the state provided segregated residential facilities which denied some impaired people the right to live where they chose and imposed assessment procedures which denied some impaired people the right to privacy (Oliver 1989:12-14, Oliver 1990:88-9).

Thirdly, welfare provision by the state led to increased professionalisation of impaired people's lives, since it resulted in the development and expansion of personal care services (Oliver 1989:14). It also contributed to an increased role for social workers, where they became guardians of vulnerable people's rights and the main mechanism for the delivery of personal services. These social workers became essential mediators

between individuals and the state (Cooper 1991:68). However, social workers and their profession have not necessarily been empowering to people with impairments. According to Oliver and Sapey (1999:31), social workers have either ignored impaired people and their needs, or else their interventions have been based on inappropriate assumptions about the nature of “disability” that places blame for their problems on the impaired and disregards the social nature of “disability”.

According to British writers on state-initiated approaches to empowerment, impaired people’s experiences reflect the weaknesses identified by both the right and left.<sup>5</sup> According to Oliver and Barnes (1998:6-9), the British welfare state presented impaired people with a series of contradictions in relation to access to social resources. On one hand, it provided employment, community care, education, healthcare and legislation to promote employment, and designed de-institutionalisation policies to promote integration into community settings; on the other, the actual implementation reflected a substantially different emphasis.

Overall this resulted in a minority of people with impairments benefiting according to the stated intentions of legislations and policies. Instead the majority were disempowered by the way these were implemented. So in the end the state, while including a minority, excluded the majority from work. Similarly, while the majority of students were educated into dependency, only a minority escaped and went on to higher, more empowering education. While the majority of impaired people and their families were forced to accept professionally-dominated, dependency-creating state services, only a few managed to establish and control their own independent lives and careers.

When the state took a more neoliberalist approach to the care of people with impairments it witnessed a movement towards community care. Framed in the notion of empowerment, community care was aimed at giving dependent people a better quality of life by removing them from the frequently inappropriate institutional settings in which

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<sup>5</sup> From the left’s perspective the welfare state suffered from inherent contradictions as a consequence of its roots in capitalism. These contradictions were inherent in its efforts to enhance social welfare, to develop the power of individuals and to exercise social control over the blind play of market forces, while concurrently tending to repress and control people to adapt them to the requirements of the capitalist economy. So while the state may provide benefits for the working class, at the same time the structure and mode of operation of the system provides further means for preserving existing exploitative social relations within society (Gough 1979:12-13).

many people with impairments lived and worked. It envisaged the large-scale closure of these traditional institutions (Dalley 1996:5). For some severely impaired people it sometimes meant closure of workshops and sheltered employment and a release into the open labour market.

In practice this too resulted in a paradoxical situation. The majority of people with impairments could access relatively more services overall and were less likely to be confined to segregated institutions. Simultaneously, however, it produced two sources of disempowerment for people in more developed countries, in the form of the professional and the NGO. The role of NGOs is discussed separately in section 2.3 below, but we look here at British writers' criticisms of domination by professionals.

According to these writers, under this scenario every aspect of life for an impaired person had its counterpart in a profession or voluntary organisation (Barnes 1991:23, 1999:9). Power and control in Britain remained with professional staff in community care facilities. Impaired people were offered little choice about aids and equipment, and times at which professionals could attend to help with matters such as toileting, dressing or preparing a meal were restricted (Oliver 1989:14, 1990:90). Finally, like segregated care, community care institutions left impaired people vulnerable to criminal assault and other acts of violence that were not deemed illegal by society (Oliver and Sapey 1999:119-20).

For people with impairments the failure of neoliberalism perpetuated the dependence and disempowerment experienced under the welfare state. Its radical onslaught on the welfare state was unsuccessful in dismantling it, but resulted in some retrenchments and reforms of state provision of services (Mishra 1990:117; Glennerster 1991:168; Taylor-Gooby 1991:23; Mayo 1994:3). These reforms led to "marketisation" of the state, which in turn resulted in the state and traditional voluntary organisations in Britain taking the opportunity to continue their disempowerment of people with impairments.

Even within the rhetoric of empowerment adopted by these organisations, the language reflected the desire of these agencies to "empower" their consumers rather than facilitate their self-empowerment (Oliver and Barnes 1998:10).

It is worth noting here that the relevance of much of the criticism levelled at the state by British writers may vary according to the kind of impairment and may not necessarily be

relevant for our case. For instance, the nature of blindness means it does not necessarily require long-term, personal intervention care services to the same extent as some physical impairments may. Many of the above criticisms may thus not be relevant from the perspective of working-age blind New Zealanders.

From the literature, we cannot yet assess how these changes in policies and their related shortcomings have affected blind and visually impaired people. However we can argue that, while undoubtedly the support of the state and other agencies is required to help with enabling them to access and harness the potential of ACT, their disempowering or empowering effects may not be so significant to individuals' daily functioning. Instead other actors such as corporate sector providers of ACT (discussed in Chapter 3) may be more important. Moreover, as we shall see, their actions, though driven by commercial interest, have successfully resulted in means by which blind and visually impaired people can harness the benefits of mainstream technologies.

Once people have accessed the necessary equipment and the skills required to use it in vocational settings, their relationship to the state may not necessitate up-front and personal interaction with state-provided services on a daily basis, so that the state and other agencies may become less immediately relevant to their personal functioning on a day-to-day basis.

Nevertheless, for people with visual impairments another set of actors, NGOs, are sometimes key determinants of success in their drive for personal empowerment. The next section discusses the role of NGOs in this empowerment.

### **2.3 Meso Level Empowerment: The Role of the NGO**

For people with visual impairments, NGOs, in contrast to the state, have played a unique role in terms of spanning both macro and micro levels of empowerment. As we shall see in Chapter 4, their role can be crucial to the effective empowerment of blind New Zealanders. This section gives a brief background to their role in popular development.

NGOs have been seen by both neoliberal and alternative development approaches as one of the key strategic groups for stimulating popular empowerment. According to Korten (1990:98-99) this is because their small size, independence and focused value

commitments give them a capacity for social and institutional innovation seldom found in either government or business. They serve as fora for the definition, testing and propagation of ideas and values, in ways that are difficult or impossible for business or the state. Their commitment to integrative values over political or economic values gives them a natural orientation to the perceived unmet needs of politically and economically disenfranchised elements of the population. Furthermore, they are generally better able to obtain broad consensus among their membership, as their constituencies are much smaller and generally united around a shared vision. Finally, in striking contrast to the government sector which tends to define its strength by the size and financial resources of its constituent organisations, the strength of the voluntary sector is found in the diversity of its constituent organisations and their capacity for independent action.

At the grassroots level NGOs, because of their nature, enjoy some advantages which make them key facilitators of empowerment at the more individual level. NGOs, as a consequence of their unique advantages (in terms of their ability to create global and local networks and linkages, their size and flexibility, ready access to the media and generally altruistic impulses) have theoretically been seen as key advocates in popular empowerment (Clark 1991:12-13). They are key actors in poverty alleviation as a consequence of their representativeness, their autonomy (both financially and because of their values or vision) and the sheer number and variety of organisations represented (Smith 1992:303-4).

NGOs, in the general sense of their contribution to development, seem to have matured and progressed in their role as facilitators of empowerment. Noting a discernible movement within the community away from more traditional relief activities and toward greater involvement in catalysing larger institutional and policy changes, Korten (1990:115-123) identified three stages or generations in the functions and types of NGO. First-generation strategies involve the NGO in the direct delivery of services to meet an immediate deficiency or shortage experienced by the beneficiary population. These needs include food, healthcare and shelter during emergencies such as natural disasters or war. The second generation, in contrast, places more emphasis on self-reliance and sustainability beyond the life of a given project. Strategies from this generation are characterised by small-scale, self-reliant local development activities. Third-generation strategies look beyond the individual community and seek changes in specific policies

and institutions at local, national and global levels. Despite this progress however, argues Korten, there also needs to be a fourth generation of NGO that looks beyond focused initiatives aimed at changing specific policies and institutional sub-systems, to changing the underlying global structures that create problems such as poverty (Korten 1990:123).

Notwithstanding their invaluable contributions, NGOs appear to suffer from shortcomings that limit their capacity to empower their target participants. Firstly, they may encounter problems such as paternalism, the prescriptive role of the state, over-reporting of development success, selective participation, hard-issue biases such as those relating to technology or finances which may influence a project's emphasis, among others (Botes and van Rensburg 2000:42-52, Njoh 2002). Secondly, NGOs can also increase the poor's dependency on external support and on change agents. Thirdly, they may simply neglect participation and implement pre-planned programmes without reference to their acceptability or relevance to the community being served (Hall 1988:107; Rahnema 1992:124; Mayfield 1997:484).

For people with impairments these organisations, though critical facilitators of their empowerment, eventually contributed to an empowerment paradox for them. The next section explores this question in more detail.

### **2.3.1 NGOs and Empowerment for People with Visual Impairments.**

NGOs have had a relatively long history of engagement in visually impaired people's affairs, especially in developed countries, spanning both the direct intervention of the welfare state and its neoliberalist retreat from direct day-to-day involvement in their lives. These NGOs consist of two types, traditional ones and those newer ones associated with the new social movement of impaired people. This section explores the role and impact of NGOs on the empowerment of people with impairments in general and the visually impaired in particular.

Due to their ability to span both macro and micro levels, NGOs involved in disability services occupy an in-between or meso level. In Britain for example, traditional NGOs have followed both first and third generation strategies, following the Korten (1990) typology described above. They came in to fill the gap in welfare services provision,

which increased at the local and national level under the welfare state. While in theory the welfare state took on responsibility for services to people with impairments “from the cradle to the grave”, in practice some services were left to voluntary organisations and NGOs, which have sometimes provided complementary services along with the state or specialised ones on their own (Oliver 1990:114).

These organisations play a particularly important part in the lives of people with visual impairments because they usually provide personal services, such as rehabilitation and habilitation, in a way that affects their daily lives. For example, in Britain the Royal National Institute of the Blind (RNIB), a leading charity which offers information, support and advice to over two million people with sight problems, engages in a wide range of services to children and adults in four key areas: accessible information and equipment, community services, education and employment. It provides day-to-day services such as information and advice, products, transcription of print into alternative formats, education and accommodation with care. It also offers a number of services which influence or support others in improving policies, services, goods and facilities, for example, expert advice to professionals, consultancy and training to organisations, campaigning for changes in legislation, undertaking research relating to people who are blind or partially sighted, and raising awareness among the general public of the needs of people with sight loss (RNIB 2003).

Furthermore, NGOs have been crucial players in harnessing the potential of ACT. In terms of training services and helping impaired people to access the benefits of ACT they provide training along with rehabilitation services in workshop-type environments, in educational settings and in conjunction with other community members such as private businesses (Midgley 1993). The content of these programmes varies from basic, introductory office-based courses to advanced training in computer-related occupations. In Britain training in new technology has focused almost exclusively on information technology and prepared recipients for low-level office-based occupations (Cornes et al. 1992:36).

Similarly it is worth noting that in developing countries NGOs have played a critical role in meeting the needs of people with visual and other impairments. This is especially true in contexts where the state has promoted neoliberal economic policy, power and

influence are held by the state and the corporate sector, and the state is not particularly enabling. For instance, Pittaway (1997:131-137), in a study of physically impaired people in Lebanon, concluded that much of the development change that occurred in their lives stemmed from the actions of their families or of NGOs. NGOs provided “generation one” relief and welfare work, “generation two” community development work and “generation three” sustainable systems development services, as identified by Korten (1990). Impaired people made vital links with NGOs which were important factors in relieving boredom in their lives. People who benefited from NGOs’ services were enabled to make improvements in their lives in an independent manner.

NGOs’ role as advocates for people with impairments has also been crucial in both developed and developing world contexts. Some traditional and newer NGOs have embarked on third and fourth generation strategies, as identified by Korten (1990). One good example of a new NGO that spans both worlds is Disabled Peoples’ International (DPI),<sup>6</sup> formed at the World Congress of Rehabilitation International held in Winnipeg, Canada in 1980. It emerged from impaired people’s disgruntlement with their inadequate representation in the governance of that organisation and with the organisation’s perceived misguided philosophy and emphases in service provision (du Toit 1992:13).

DPI is an international umbrella for local NGO initiatives. It includes mostly consumer and self-help groups (Driedger 1989). It is involved in a range of activities such as lobbying at the international level, policy advice at both international and regional levels, training, advocacy and encouragement of partnership and cooperative development initiatives between local disability groups and other stakeholder interests. It has been successful in developing a global membership and advancing disability issues on the global stage (Barnes and Mercer 1995:41).

In the case of people with impairments it appears that while traditional NGOs in developed countries have indeed been useful, they suffer from some of the shortcomings identified as sometimes affecting NGOs (see section 2.3, p.43). The next section briefly describes how these shortcomings have affected people with impairments.

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<sup>6</sup> The name appears in this form (with apostrophe) on the DPI website and logo.

### **2.3.1.1 Criticisms of NGO-based Empowerment for People with Impairments**

Despite their good intentions, NGOs (especially traditional ones) involved in administering impaired people's affairs have received heavy criticism in the disability studies literature, as this section outlines.

According to British disability writers, traditional NGOs engaged in service delivery have sometimes adopted a top-down institution-led approach to empowerment and have eventually perpetuated dependency among people with impairments in the same way as the welfare state (Oliver 1989:19; 1990:98). Drake (1996:152) identified five ways in which the actions of traditional charitable NGOs in Britain have led to disempowerment of people with impairments, and continue to do so. These are: the ethos and focus of voluntary action; hegemony, governance and the control of resources; structures and practices within voluntary groups; the use of imagery by charities; and finally, the political inertness of the voluntary sector.

Traditional voluntary organisations and NGOs, steeped in the charity model approach to people with impairments (Oliver 1989:16), have employed a range of strategies and practices which have resulted in a series of disempowering situations for people with impairments. Firstly, charities have maximised certain perceptions which have made it difficult for people with impairments to project alternative images of themselves in order to acquire financial resources through other means such as work. Secondly, in a situation where substantial funds are allocated to help people with impairments, charities serve their needs very poorly. Thirdly, these charities have made the emergence of non-traditional organisations governed by people with impairments difficult because of the advantages they glean from their status as long-established institutions. These include the priority the public places on them when giving donations, tax concessions to which they are privy, unlike newer organisations, and the public perception of them as being involved in "good causes," among others (Drake 1996:154).

Traditional NGOs have excluded people with impairments from positions of authority and governance. Instead, non-impaired people governing these institutions have controlled the use and benefits of resources allocated by the state, through either direct funding or successful acquisition of contracts. Government and the public have seen

these organisations as the main channels through which aid is directed so that they have continued to be the desirable media for provision of charitable aid.

To further compound problems for people with impairments, traditional charities have been inert in regards to agitation for their political and social empowerment. Owing to their status as charities (Oliver 1990:105) they have feared to jeopardise their status as gateways of government funding (Drake 1996:158). The British government's control of their access to financial resources has prohibited them from overt political action (Barnes and Mercer 2001:14).

For people with visual impairments, what little literature exists suggests that they too experience many of the problems faced by other impaired people who are dependent on NGOs. For example, Vaughan (1993) noted that in the United States visually impaired people encountered a range of bureaucratic hurdles which disempowered them, while Newbold (1995) documented many of the struggles faced by blind and visually impaired New Zealanders in their quest for participation in and control of services provided by the monopolistic RNZFB.

In response to these shortcomings people with visual and other impairments have established their own grassroots movements. The next section outlines their struggle to influence the provision of services as well as wider policies affecting their lives.

## **2.4 Impaired People's Self-Development**

In this section we briefly review some key aspects of impaired people's drive to empower themselves. This is important because as we shall see in Chapter 4, harnessing of new technology has stemmed mainly from the efforts of individual blind New Zealanders to access the benefits of ACT. In the absence of stories about their individual efforts at self-development we will look at the available literature on collective self-development, since this brings us closer to the micro level where individual attempts at self-empowerment occur.

As we argued in Chapter 1, alternative, bottom-up development approaches have challenged the central role of the state and the market in mainstream approaches to popular development. Key processes such as decentralisation of the state are regarded as

particularly crucial for enabling people to participate at the grassroots level (Samoff 1990:516-17). Popular empowerment strategies involve people and organisations at the up-front and personal individual or group levels. Key aspects of empowerment are control of organisations by disadvantaged and underprivileged people, social awareness of disadvantage and self-reliance (Rahman 1993:206-7). Animators or facilitators, along with NGOs, represent crucial allies in the drive for popular self-development. These individuals and organisations are required to perform a delicate balancing act that avoids manipulation and advances local knowledge and self-empowerment (Long and Villarreal 1993:160, Rahman 1993:196).

From the viewpoint of people with impairments, while this agitation at grassroots level maintains some features common to other marginalised people such as the struggle for rights, access to services and a variety of entitlements, it is, in one sense, qualitatively different. This is because, along with the question of the state and the market, much of the struggle for empowerment for impaired people in developed countries relates to participation in meso-level organisations (namely long-established ones) as well as in wider social processes (Oliver 1990:114; Campbell and Oliver 1996:23, 62; Barnes and Mercer 2001:13).

This struggle has come to be viewed as a new social movement, in contrast to older movements originally initiated by traditional NGOs working for people with impairments. In this instance it demanded a reorganisation of NGO-consumer relationships so that people with impairments could help to run these organisations themselves. As noted above, traditional organisations have mainly catered to their needs and advocated on their behalf, but without including them in key decision-making structures.

Three strands have characterised this movement since 1970: the independent living movement, consumer organisations and self-help groups. The first two are more synonymous with the developed world while the latter is more obvious in developing countries (Driedger 1989:3-4).

The independent living movement grew out of ideas that obstacles to self-actualisation were the result of living in hostile physical and social environments and that the services

being provided were restricting rather than enabling. It led to the setting up of alternative kinds of service-provision under the control of impaired people themselves (Oliver 1990:120, Barnes and Mercer 1995, Brisenden 1998:26).

In conjunction with the independent living movement, agitation for human, civil and political rights occurred throughout the developed world. The ADA (see section 2.2.1.1 above) became a kind of model for civil rights legislation for people with impairments and has now been replicated throughout the developed world, with Canada, Australia, New Zealand and other countries implementing similar legislation (Barnes and Mercer 1995, Rioux 2001:41).

While we are focusing mainly on the developed world it is worth signalling that in poorer countries social movements are also occurring. However, the causes, emphases, shape, nature and organisations of these new social movements reflect the differing situations in developing countries and their developed counterparts. Due to deprivation in basic necessities and services such as rehabilitation, transportation, financial resources and employment (Driedger 1991:3, UNDP 1993:27), the struggle for empowerment is not so much against top-down institutional frameworks, as in more developed countries, but against the lack of basic services (Driedger 1989, Barnes and Mercer 1995:38). Consequently these movements use relatively successful strategies such as community-based rehabilitation (CBR). In contrast to Western bureaucratic top-down models, community-based service delivery emphasises self-reliance, participation, partnership equity and collaboration between different service sectors and groups (O'Toole 1991:206-7; Barnes and Mercer 1995; Lysack 1996:118).

Alternative development approaches have provided impaired people with a measure of success. According to Barnes and Mercer (2001:23) the emergence of this movement has offered people a real political voice. It has also had a significant influence on politicians, policy-makers and the population at large. At the structural level, its most important contributions have been legislative victories such as the enactment of anti-discrimination laws around the world. Equal rights for impaired people are now firmly on the political agenda at both national and international levels. Similarly, user involvement in the planning and delivery of services is increasingly prevalent throughout the world.

However, like macro- and meso-level approaches to popular empowerment, this approach is also riddled with shortcomings. Where impaired people have to depend on social movements and NGOs they are also faced with a series of problems that negate their effective mobilisation and participation. These include fear of reprisals and further marginalisation, lack of personnel to carry on agitation, and disability activists placing their own agenda before that of the group (Camilleri and Callus 2001:90-91). Moreover, social movements may also be susceptible to other problems associated with alternative strategies. These include the localised and sometimes ineffective nature of these strategies (Brohman 1996:224), their failure to result in new forms of knowledge or power (Rahnema 1992:122-4), or to significantly empower people by transforming underlying structures of disempowerment (Rahman 1995:25).

While we cannot determine from the literature the specific impact of bottom-up approaches to harnessing the potential of ACT, we believe that action on the part of blind and visually impaired people is a prerequisite for releasing its potential for empowerment. As we shall see from the New Zealand experience, much of the work making ACT's potential available has stemmed from individual action, as opposed to collective actions on the part of meso-level organisations. In fact we may argue that harnessing ACT's potential may not actually require a social movement approach because the problems being addressed exist at the personal, individual level and a collective social movement approach is not required to resolve them (Staples 1990:35).

Moreover the collective social movement approach, if pursued alone, would probably only be partially successful. In the first place ACT's most empowering impact is probably at the most personal level, where it is expected to compensate for the limitations of visual impairments. Therefore it requires individual action to harness its benefits. A social movement approach for instance cannot make individuals maximise the technology if those individuals do not wish to take advantage of its existence through training and technology learning. In short, successful use of ACT is extremely dependent on individual response to its existence, as the findings chapters demonstrate. Social movements may make potential users more aware, but the motivation to capitalise on its potential must come from the individuals' own desire to become empowered.

Secondly, a social movement approach may conceivably help with issues surrounding the actual use and harnessing of ACT's potential, such as its development and deployment. However, there is not yet a sufficient number of blind people with access to the necessary skills and resources to develop ACT or effectively impact its creation, nor to change underlying disempowering attitudes and structures by themselves. In reality, mainstream technological development is currently driven by big international commercial interests which are outside the present scope of influence of the visually impaired, and is thus oblivious to their special needs. Instead specialised technologies to cope with mainstream technological changes have had to be created, or retrofitted,<sup>7</sup> by a small cadre of business people. This point is discussed further in the next chapter.

This second point then raises the question of a more pragmatic, complementary role for the major actors in the pursuit of their empowerment. Since each of the above social actors has demonstrated some drawbacks when dealing with impaired people, the ideal would be a situation where each actor's role complements the others. For instance, the state could provide the macro and legislative frameworks that would protect the individual from the shortcomings of the NGO approach, NGOs could continue to fill in gaps where the macro approaches falter and social movements could continue to agitate for improvements in impaired people's situations. This would create an environment in which the individual could easily harness ACT's empowering potential.<sup>8</sup>

## **2.5 Summary and Conclusion**

Like other major issues in the literature surrounding popular empowerment, the question of who should be responsible for the process of empowering visually impaired people has attracted some controversy. This chapter introduced three of the main actors usually focused on in the development literature. We looked at actors at the macro level such as

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<sup>7</sup> The development of adaptive technology to enable blind and visually impaired people to make use of mainstream technology is called "retrofitting". Such technology is usually developed in response to limitations posed by mainstream technological change and development, which prevent blind users from interacting with mainstream technology. This process is also an alternative to "universal design", in which adjustments and accommodation for blind people's special needs are built into mainstream technology in the initial stages of its development. Retrofitting is becoming more controversial in the literature because, while generally empowering, specialised technology can also be disempowering as it imposes an additional set of technologies and needs on its users (Sheldon 2001:268).

<sup>8</sup> This idea is explored more fully in Appendix 2.

the state, actors at the meso level in the shape of NGOs and those at the micro level in the form of grassroots disability movements.

Top-down empowerment strategies that saw the state as a key facilitator of popular empowerment led to a measure of material empowerment. Unfortunately this simultaneously resulted in dependency and in professional domination of the lives of people with impairments. While neoliberalism (in a bid to redress the failings of the welfare state) more explicitly embraced notions of popular empowerment through the market, it also perpetuated a similar kind of disempowerment for them. In contrast, alternative development approaches appear to have provided people with a limited degree of empowerment. However, internal deficiencies and underlying, systematic problems have mitigated this success. These shortcomings have contributed to a growing recognition from both mainstream and alternative development perspectives that popular empowerment requires a more complementary, pragmatic, facilitating role for the state.

More importantly from our point of view, the discussion so far has omitted one key element for successful empowerment to take place - visually impaired individuals' own personal understanding, role and participation. This missing element could probably explain why these people appear to be caught in a paradox of empowerment. The reason why the well-intentioned strategies of the above actors have often been undermined by simultaneous negative developments that perpetuate dependence is that these strategies have often excluded a critical element - the individual dimension.

The advent of ACT holds out a promise of increased access to empowering work and employment opportunities as a beginning point for visually impaired individuals to actively respond to and shape their external circumstances. Before proceeding to the real-life vocational experiences of blind New Zealanders, we continue the stage-setting in Chapter 3 as we consider one other set of key social actors in their drive to harness ACT's empowering potential. These are the private sector enterprises which design, manufacture and market electronics in general and assistive technology in particular. We also look closely at the potential and development of this technology and its impact to date on visually impaired and blind people. This material is then applied to the New Zealand context in Chapter 4.

# **CHAPTER 3: ACT AND VOCATIONAL EMPOWERMENT OF THE VISUALLY IMPAIRED**

## **3.1 Introduction**

Until now we have been outlining some of the main theoretical concerns surrounding the question of empowerment. In Chapter 1 we argued that empowerment for visually impaired people involves them having access to means that enable them to function both personally and socially. In Chapter 2 we started to describe some of the major actors that take part in their empowerment. We noted that this process ideally includes all the various stakeholders who operate at the different levels of empowerment.

In this chapter we continue to explore the question of who should do the empowering. To this end, we look at a fourth social actor which has played a pivotal role in helping the visually impaired to access ACT. This comprises the corporate sector companies that have developed the kinds of specialised technology that enables blind people to access mainstream technology.

We also try to advance this discussion by focusing on the individual as an actor and exploring the role that ACT plays in his or her personal and vocational empowerment. As we have seen from our discussion in Chapter 1, ACT can enable people to work and become economically self-sufficient. This in turn allows them access to resources which enable them to be independent of the state and NGOs in developed countries and to provide for their own basic needs in developing countries.

This is by no means an orderly, generally accepted conclusion. The available literature is split along two seemingly irreconcilable lines, largely influenced by the dual perspective that attends current writing on technology and on people with impairments. One view regards technology as a prosthesis to help them minimise impairments' effects on their capacity to function; the other argues for the focus to shift to the external environment surrounding the technology's use and benefits.

This divide has generally led to simplistic and overwhelming adherence to either extreme optimism or pessimism. The optimistic approach operates in the old development model,

where technology is seen as the solution to development problems. In this instance it assumes that preparing technological solutions to compensate for the limitations of impairment will automatically enable people to work and so solve their economic problems. This position however is a top-down, capitalist-driven, technological quick-fix one that does not address other underlying contributory factors to disempowerment.

The optimistic view is criticised by the social shaping of technology and social model views. These views, generally more pessimistic, contend that technological change is not predetermined, but is shaped by social choices and underlying decisions. Consequently it cannot be expected to bring about automatic empowerment of any given group (Dutton 1996:5). So for instance, the social model highlights barriers that mitigate ACT's usefulness and demands their redress (Sheldon 2001). Furthermore it argues that optimistic perspectives are often based on analysis of ACT's effects at the micro level, with almost total disregard for its effects at the macro level. Optimistic perspectives thus give rise to false expectations about what ACT can contribute to impaired people's empowerment, both personally and vocationally (Michailakis 2001).

This chapter explores this debate in the literature under three main headings. In the first two we look at the optimistic scenario. In section 3.2 we describe the literature supporting the argument that technology is an enabling, effective source of empowerment for the visually impaired, and consider their experiences in the vocational context in section 3.3. On the other hand, the mere existence of ACT does not mean blind people will automatically be empowered. They may lack motivation to try the technology, may be unable to afford it, may be unable to learn how to use it, and may be prevented from developing its potential by prejudiced employers. Furthermore, there are disadvantages in the nature of the technology itself and in the way technological changes occur. This is where we explore the pessimistic view as we consider barriers to ACT's potential benefits, in section 3.4. We conclude that both perspectives are, in reality, addressing similar issues and can be reconciled by their common concerns. Section 3.5 ends the chapter by presenting a summary of the thesis so far.

We begin the discussion by exploring the general promise of technological change in the next section.

## **3.2 Technological Change and the Promise of Digital Technologies**

The digital revolution has resulted in the prominence of microcomputers and the creation of networks and the internet as major developments that promise to dramatically affect the lives of people with impairments. In view of the scarcity of literature surrounding ACT and people with visual impairment, this section outlines what these technological developments promise for people with impairments in general. Wherever possible we report the specific case of people with visual impairment.

The use of micro-processing has resulted in smaller, more powerful units such as PCs, laptops and palmtop computers. In conjunction with adaptive devices and software they are a versatile technology for all types of impairment as they substitute for weak and inflexible fingers that are unable to write or draw. They substitute control by foot, mouth, head, chin, eye or even voice for muscular and manipulative skill, which many impaired people do not possess (Ridgway and McKears 1985:14). So versatile are these computers in terms of their adaptation to input, throughput and output that some authors believe that they will eventually virtually eliminate the limitations of impairments. They may do so to the extent that what is considered a disability at present may not appear to be one in the future (Roth 1992:26).

Due to their special qualities computers become important mediators of personal power and empowerment, especially in interpersonal contexts. This is because, as we saw in Chapter 1, personal attributes are important in close personal interaction with other people. As computers in this instance are versatile tools for restoring lost function to people with a variety of impairments (Ridgway and McKears 1985:14), they also become important definers of power relationships. Computer technology by virtue of its speed, instantaneity and other benefits of electronic writing and communication, changes and diminishes the significance of time and space (Scott 2001:30). These capabilities are benefits for people with impairments whose power relationships may be shaped by the limitations of their impairments as well as by social responses to those impairments. For instance, the anonymity offered by the internet may shield a blind individual from the prejudice of an otherwise discriminating person.

Furthermore, because of the dynamic nature of power relations, technology can also act as a vehicle for empowerment because it helps to determine choice and access to resources, as well as redistributing power to those who are able to maximise the advantages of technological changes. It does this by transferring resources to them, presenting them with advantageous alternatives, offering a currency for political power, and enabling them to take advantage of role definition and task modification (Freeman 1992:13-15).

Having explored some of technology's potential for empowering people with impairments, the next section describes its advantages for blind users.

### **3.2.1 Advantages of the Digital Revolution for the Visually Impaired**

The computer revolution has three potentially enabling advantages over older forms of technology. These are the complete objectification of information, the production of sophisticated cognitive information and the creation of information networks (Masuda 1981:50-59). This section describes these advantages for visually impaired and blind people, who have traditionally encountered difficulties in this area.

Objectification of information means that information can be produced independently of the human being. Original information can also be created independently and information can be stored in preservable formats. This objectification has occurred in three stages. The primary phase was a shift away from production and dissemination of information mainly through word of mouth and oral literature, to writing on stone and development of alphabets and ideograms. This meant that information was no longer dependent on the physical presence of the human being, but could be disseminated more independently. The second phase saw the introduction of the printing press and the reproduction of information in typographical format. This shift away from handwriting allowed information to be transmitted more independently in multiple forms. In the third phase the computer, through electronic representation and processing of information, led to separation of the production of information from the human being (Masuda 1981:50-2)

Subsequent to the progression in general information technology, a number of means of accessing information have become available to blind and visually impaired people. These

are sighted intermediaries (where a sighted person reads aloud to the blind person), braille, and analogue technologies such as cassettes and radio. These however are plagued by a series of restrictions that make them less effective as means of information access. For instance, while sighted intermediaries are helpful, most frequently intermediaries are unavailable, expensive, inefficient, are of doubtful reading quality and increase the dependence of the totally blind person (Crandell and Robinson 1994:165).

Along with the use of intermediaries blind people have traditionally used tactile means of accessing information such as Braille<sup>9</sup> and Moon.<sup>10</sup> Braille had many advantages over Moon and other tactile forms of reading as the six-dot configuration offered great flexibility and the characters were relatively easy to recognise by touch. It eventually became the international reading mechanism for people with severe visual impairment.

Braille provided a measure of independence to blind people. They could keep important and frequently needed information, such as telephone numbers, dates and filing systems, in a format that made it more easily accessible. As such, braille was an improvement over total dependence on intermediaries (Williams 1996:21). Braille, however, had several disadvantages. First, brailleing a book was a slow process which required special skills. The average braille volume measured 30 cm x 23 cm. Owing to the thickness of the braille paper, it was also heavy. Thus, relatively little information could be stored in braille books. For example, a 200-page sighted print text could account for as many as six volumes in braille. As a result of this bulk braille was space-consuming and less portable. It was also a slow means of accessing and processing information (Mitchell 1963:60-6).

When braille was used as an important means of information access, other generally available means such as cassettes, radio reading services and phonograph records were used to offset some of its disadvantages. In the early 1930s, the American Foundation for

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<sup>9</sup> Braille, devised in 1887 by French inventor Louis Braille, represents an elementary form of data compression. The braille system is based on a six-bit binary code yielding 64 distinct representations. In Grade II braille certain character combinations have special meanings. This saves space (Jolley 1996). Reproduction of braille was accelerated by the development of the braille embosser but it took 100 years for braille to become the most significant form of touch reading in the world. (Dixon and Mandelbaum 1990).

<sup>10</sup> Moon was developed about the same time as braille. It was a less popular writing system used by the visually impaired, consisting of raised outlines of the letters of the alphabet (on thick sheets of paper) that are read with the finger.

the Blind developed and produced the first talking books. These comprised recorded materials produced on rigid 12-inch phonograph records that played about 15 minutes per side. Talking books vastly increased blind people's access to the printed word. Even from the beginning, they were faster and less expensive to produce than braille materials, required less training by the transcriber and were much easier for blind people to use (Dixon and Mandelbaum 1990).

Nevertheless, like braille, they were relatively time-consuming and limited in their usefulness for producing reading materials for other than recreational purposes. Therefore, another alternative was used, in the form of radio reading devices. These utilised a sub-carrier channel of the standard broadcast band to provide immediate access (to local newspapers, periodicals, and similar time-sensitive materials), with a special receiver to hear a live reader or a recently recorded tape. However, radio reading services had numerous limitations. As they had to adhere to a schedule, the narrator often could not read complete articles. In addition, the listener could not vary the rate of narration, skip or skim to read only what was of interest, or easily "save" articles to read or review at another time (Dixon and Mandelbaum 1990:492).

Over the last several years, however, advances in microcomputer technology and telecommunications, such as digital representation of data, data compression and creation of optical fibre<sup>11</sup> bearers, have occurred which contain special promise for information access, processing and storage for people with visual impairments. These possess advantages in that firstly, they allow for fast processing, possess huge memory storage capacities and are cheaper componentry for computing purposes. Secondly, they allow for high-speed digital data transmission media. Digital techniques in data transmission are equally well suited to voice, data and video images and so are extremely efficient and flexible. They convert raw data such as conversation, financial transactions or photographs to digital form, transmit it and reconstitute it at the other end. Digital transmission also allows for multiplexing, facilitating transmission of many messages over the one transmission line, whether copper wire, optical fibre, coaxial cable or radio channel (Dixon and Mandelbaum 1990, Jolley 1996).

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<sup>11</sup> Optical fibres are very thin strands of glass, thinner than a human hair, which have excellent characteristics for carrying digital data in the form of pulses of light (Jolley 1996).

Some companies have seized these advantages to create ACT for the visually impaired. We describe them in the next section.

### **3.2.2 Acting on the Promise: The Role of Private Enterprise**

Although this chapter is overtly devoted to ACT, it is worth reminding ourselves who created the technology in the first place. This section introduces a fourth actor: some of the companies and organisations that have helped to create specialised technologies for blind and visually impaired people. In Chapter 2 we discussed the state, NGOs and the grassroots disability movement. None of these three actually initiated the computer revolution; they merely responded to it in their various ways. It took the ingenuity of industrial inventors and designers, along with the financial and marketing power of commercial corporations, to actually create specialised technology that enables blind people to access and interface with mainstream technological changes.

Among the more prominent organisations that have devised ACT especially for the visually impaired are the following:

**1. *Freedom Scientific.*** This company was formed in 2000 through the merger of Henter-Joyce, Blazie Engineering and Arkenstone, all companies involved in ACT production and marketing. These companies brought their flagship products to the merger. Henter-Joyce, founded by Ted Henter in 1985, brought its well-known product Job Access With Speech (JAWS), created in 1987, to the union. Blazie Engineering, founded in 1986 by Dean Blazie, had developed note-takers such as the Braille'nSpeak that has been widely used by students. By the time it joined Freedom Scientific it had developed leading brands of note-takers, as well as braille embossers, printers and refreshable braille displays. Arkenstone, originally formed in 1989 by Jim Fruchterman, contributed his optical character recognition (OCR) technology in the form of the OpenBook Ruby brand, as well as other software for dyslexic people, to Freedom Scientific.

Currently headquartered in the United States, Freedom Scientific has offices in Germany serving the European market. Its mission statement is “to develop, manufacture and market innovative technology-based products and services that those with vision impairments and learning impairments use to change their world” (Freedom Scientific 2004).

**2. Pulse Data International.** Created in 1988, this company has grown to be international in scope, and has 100 employees. It is currently headquartered in New Zealand but has branches in other developed countries such as the United States. It manufactures video magnifier products (closed circuit televisions or CCTVs as they are more commonly known) such as SmartView and PocketViewers. It also makes braille and speech output products such as BrailleNote and VoiceNote. Along with these products it also acts as distributor for other leading brands such as the JAWS screen-reader. Its homepage boasts of its commitment to “bringing the latest developments in personal information management technology to people who are blind and visually impaired” (Pulse Data International 2002).

**3. Kurzweil Educational Systems.** Another leading company in ACT creation, it is headquartered in the United States. Though established in 1996, it was involved in ACT creation as early as 1976, creating the world’s first reading machine, the Kurzweil Reader, in that year. Named after Ray Kurzweil, the machine’s inventor, the company declares its passionate commitment to “opening up a world of knowledge to people who struggle with the printed page”. Currently it produces the Kurzweil 1000 to help blind people to access printed information and the Kurzweil 3000 to help people with dyslexia (Kurzweil Educational Systems 2004).

**4. GW Micro.** This company, established in 1990, operates out of the United States. It makes speech products such as Window-Eyes and Vocal-Eyes and other solutions for desktop and laptop computer systems. Describing itself as a “small” company, it pledges to “give independence to the visually impaired” (GW Micro 2003).

**5. Dolphin Computer Access.** In existence since 1986, this company produces a range of software and hardware products in braille, speech and print output formats. Some of its most prominent products are Hal Screen Reader, Lunar magnification software, Cicero and Supernova, among others. Though headquartered in Britain, the company has branches and subsidiaries in the United States and Sweden. It provides a range of support services in other countries as well. Its goal is “to create software products that allow visually impaired people to use mainstream information technology. Dolphin software is designed to work together with existing computer systems, providing access

to a wide range of Windows programmes through magnification, speech and braille” (Dobbs 1999).

Despite these companies’ commercial objectives, their mission statements imply an underlying intention to enable people with visual impairments to access ACT for their personal empowerment. This idea is expressed in some way by each of the companies described above. The next section describes some of the products and the ways in which these assist people with visual impairment.

### **3.2.2.1 ACT for the Visually Impaired**

Having considered the producers of special technology for the visually impaired we now describe the technology itself. Responding to general innovations in technology, these companies have together generated a range of specialised assistive technologies designed to substitute for loss of or reduction in sight. These facilitate communication by converting electronic text or regular print to speech, braille or other tactile forms. Conversely, others allow for conversion of information from spoken to palpable forms (Glinert and York 1992).

There are four families of especially helpful specialised or mainstream technology for people with significant visual impairments. The first consists of screen magnification programmes and facilities. For people who can see well enough to use regular computer screens, mainstream producers of technology like Microsoft have built in accessibility features that include screen magnification, switch screen function, and variable font size. These functions enable individuals to customise their screens to make reading comfortable.

For people who are more severely impaired, to the extent that these mainstream features are not particularly helpful, producers of specialised technology such as Pulse Data have produced a range of text and screen magnification hardware and software. This software, such as ZoomText, helps magnify text and icons on screen (Pulse Data International 2002).

The second kind of technology, generally designed for more severely visually impaired people, is voice or speech output systems. These voice programmes generate an artificial speech that tells totally blind people, in a mechanical voice, what is on the screen. This

voice either comes from a speech synthesising box like the Apollo, which sits outside the computer, or else is generated by a sound card within the computer. More frequently, common speech programmes such as JAWS, Hal or Window-Eyes are installed in regular computers and use the regular speech card so that the individual no longer requires specialised custom-built hardware to use such programmes.

Finally, for those blind people who are fluent braille readers, there are braille display units and braille keyboards. These allow the blind person to read a braille version of the information on the screen, and also to write in braille and have this converted automatically into normal print when communicating with the sighted.

In this third family of technologies, some are made specifically to be used among blind people and may have specialised braille output, accessible only to a braille reader. Some examples of these are note-takers, such as the KeyNote and BrailleNote produced by Pulse Data, which enable the blind user to access, record and report information in a tactile format. On the other hand software such as JAWS, Window-Eyes and other screen readers enables the individual to operate using mainstream, off-the-shelf computers.

Another set of technologies that is extremely useful to blind people is the family of hard copy print access technologies. These perform a rather different function. They give blind users access not to computers as such, but to ordinary print material. Instead of having to ask someone to read a book to them, or get it transcribed into braille, users can “scan” the information into a machine and get direct access.

Here there are two sub-sets, one for partially-sighted people and the other for totally blind people. For those with residual vision there are CCTVs such as Pulse Data’s SmartView, while for those with little or no useful vision there are optical character recognition systems (OCRs). CCTVs are useful to help the low-vision reader to access everyday printed materials from books or magazines. This technology in particular can be either a stand-alone hardware/software unit, or attached to a regular PC.

For the totally blind person there are scanners which turn print into artificial speech, with the OpenBook Ruby family and Kurzweil readers some of the most well known. In the past, these technologies were stand-alone, custom-designed scanners that were

cumbersome, expensive, and not easy to interface with mainstream computers. Now, however, these brands offer comparatively cheap software packages which are loaded onto mainstream computers. These also enable the user to use regular mainstream scanners to access information.

A point of interest here is the fact that although these technologies exist, they do not totally negate older forms of accessing information. In fact some of these older technologies such as braille have been incorporated into new technologies because of advancements in computer software and hardware, communications methods such as the internet, and braille embossing and display devices. Together, these mean increased, quicker and more efficient access to and production of braille, with improved quality and availability (Sullivan 1996).

On this note we proceed in the next section to look at how this increased access to information presented by ACT is supposed to help the visually impaired.

### **3.2.3 Access to Information and Empowerment for the Visually Impaired**

Apart from their substitution for the functional limitations of impairments, computers' capacity to facilitate cognitive, non-physical pursuits is also significant. This is because cognitive information enables the user to make informed, logical and empowering choices (Masuda 1981:52-53). This section explains how access to information is beneficial to people with impairments. Whenever possible we cite specific examples relating to the blind and visually impaired.

For people with impairments significant benefits of computers lie in their capacity to enhance non-physical pursuits, such as expression through words, manipulation of mathematical symbols, storage and retrieval of information (Ridgway and McKears 1985:13-16). Altogether, new mainstream and assistive technical innovations are expected to offset the information disadvantages experienced by visually impaired people. At a personal level, they offer greater access to rich and general information sources, improved access to complete and in-depth data, the ability to engage in spontaneous selection of information, increased accessibility of information, increased

ability to interact and increased ability to share information, which were not afforded them by older analogue technology systems (Yeh and Hong 1996:7).

Computers possess key benefits that may be extremely useful to blind people. Brachacki (1999:38-41), in his study of dyslexic people, pointed out that firstly, computers are systematic and predictable with transparent processes, where humans are not necessarily so. Secondly, they are responsive to users, allowing them to make choices regarding access to information and the tasks to be undertaken. Thirdly, they are also more flexible than humans with respect to timing and duration, because they never get tired or bored and do not have other pressing obligations, nor do they express negative human emotions such as exasperation or impatience. This allows blind people to work at their own pace. Fourthly, computer systems can hold a great deal of readily available raw information with less risk of that information becoming corrupted or distorted than with a human being. Additionally, this allows for complete and coherent record-keeping, which means more efficient use of time.

Other forms of ACT such as the internet can empower people who experience the limitations of impairment. Kerscher (1996:10) believes that it is through technology that the effects of impairment are diminished. If people with visual impairment are able to access the same information simultaneously with their able-bodied counterparts, they will begin to integrate on an equal basis. Likewise Rheingold (1993) argues that the internet has made the world and information readily available. A person with restricted mobility or access difficulties can now select what, where and who to interact with anywhere in the world from their own computer terminal. The internet allows individuals enormous business, recreation or social activities, which formerly involved physical or face-to-face contact and meetings, conversation or shopping, to be carried out through online interaction. Further, online activities can sometimes lead to virtual communities or social aggregations that emerge from public discussions via the internet. This new type of forum allows people who have common interests, or who are affected by common issues, conditions or concerns to communicate together technologically, if not geographically, and to share their views and raise their voices (Welham 1997).

At a wider level, computers offer increased access to educational and employment opportunities. Educational access is important because education and training are critical

factors for integrating people with impairments into the workforce (Welsh and Foster 1991). In Britain, for example, well-educated blind people have obtained jobs that they wanted fairly easily (Roy et al. 1996). ACT enables them to benefit from educational resources that permit them to become full participants in economic enterprise (Glinert and York 1992:3, Cunningham and Coombs 1997).

ACT overcomes their communication and information access limitations and enables them to become effective participants in the new information age through work, education and participation in wider social processes (Graves and Maxson 1989, Williams 1996, Cunningham and Coombs 1997, Roulstone 1998). Access to information is critical for blind people to participate, as Ryles (1996) discovered in a study of braille usage. Knowledge of braille was clearly related to the capacity to access information, earn higher income and generally obtain information regarding current events and jobs. Leonard et al. (1999), in a study of blind and visually impaired people in the United States, concluded that computer and typing skills were among important factors associated with employment and that technology training emerged as a significant predictor of employment in higher-level positions.

At this point it is worth reminding ourselves that although the study is concerned with empowerment, we have chosen to locate the question in the vocational experiences of blind New Zealanders, to make the case study more manageable. This approach is relevant within the mainstream developed country context due to the more structured formal sectors in which economic activities are pursued in that context. So despite its inherent economic bias and susceptibility to “employment thinking”, where employment is seen as the only solution to poverty (Chambers 1997:47-8), this seemed a good case study for assessing ACT’s effects on a traditionally vulnerable group.

Further, employment as an empowerment strategy for people with impairments is acceptable, given the fact that despite their different emphases, mainstream and alternative development streams of thought are relatively similar in their development goals (Pieterse 1998:345). Consequently the adoption of mainstream strategies may still contribute in part to their empowerment. Furthermore, the critical importance of employment as a means for empowerment is due to the economic deprivation and

disadvantages impaired people experience despite the gains of the traditional top-down and new social movement approaches (see Chapter 1).

The next section looks specifically at how computers have affected employment of blind people, as we continue to set the stage for the rest of the thesis.

### **3.3 The Promise and Impact of Computer Technology in Employment**

Employment is a crucial factor in the creation of opportunities for improvement in the status of people with impairments (Harper and Momm 1989). In contrast to the welfare charity model approach, employment is promoted by neoliberals and disability writers as a major strategy for empowerment of the individual. Neoliberals see individuals' empowerment within the market context as related to their access to resources. The 1993 Human Development Report states that the best form of participation for most people is through productive and remunerative work, self-employment and waged work, which empowers them economically, socially and politically, especially in the context of an increase in the market's role as economic mediator of goods and services. Employment empowers people economically by giving them purchasing power for goods and services. It empowers them socially by offering a productive role that enhances their dignity and self-esteem. And it can empower them politically if they begin to influence decision-making in the workplace and beyond (UNDP 1993:35).

Other approaches appeal to humanitarian rationales for rehabilitation, as articulated by the International Labour Organisation (ILO) and other United Nations agencies which see employment as a critical human right and a means of social integration and economic empowerment (ILO 1985, Tool 1998). However, disability writers insist that economic self-sufficiency solves many of the problems of impairment.

First, it makes impaired people independent and takes them off welfare. This in turn has multiplier effects in terms of reduced state expenditure, better use of human capabilities, increased integration and community mobility among others (DeLoach 1992, Wehman 1998, Eggleton et al. 1999). Secondly, from the personal viewpoint employment is a determinant of social status (Jenkins 1991). Indeed, it can be argued that the way individuals value themselves and are valued by society is circumscribed by their

relationship to the world of work and to the ownership of property and that the relationship to production confers much of the sense of self-worth and identity upon individuals. It affects their standard of living and determines whether or not they are largely outside society (Bluestone 1989:17). For impaired people employment is a matter of promotion of self-assertion, self-confidence, self-worth, contact with and recognition by non-impaired people, greater independence and financial security and is thus more important, or at least equally as important for them as for their non-impaired counterparts (Keller et al. 1999).

Employment of people with impairments is becoming more viable with the advent of technological innovations (Hunt 1995). ACT, as facilitator of their acquisition and retention of employment, appears to be a recurring theme through the literature. In an indirect approach to this issue, the United Nations views new computer technology as one important prerequisite to their employment. It therefore urges “support for the use of new technologies and development and production of assistive devices, tools and equipment and measures to facilitate access to such devices and equipment for people with disabilities” to enable them to gain and maintain employment (United Nations 1994:26).

Other studies have shown that people with visual impairments also believe that ACT is an important factor in accessing and maintaining employment. For example in studies conducted by Rumrill et al. (1997), they saw its potential benefits to enhance their job performance. Mastery of assistive technologies was also listed among the factors used by visually impaired women to advance their careers (Hutto and Hare 1997). In another study, where visually impaired people were found to be underemployed and restricted to low-income and low-level occupations, absence of funding for ACT emerged as a major contributing factor (Miller 1991). Anecdotal evidence from interviews with visually impaired professionals suggested that it was a critical factor in job acquisition and job retention (Attmore 1990.). The next section reports on the actual effects of ACT on employment to date.

### **3.3.1 ACT's Impact on Employment Opportunities**

In this section we consider ACT's actual effects on employment opportunities for the visually impaired. Despite the existence of various ideas about ACT's effects on

employment, trends in the employment of visually impaired Europeans exemplified both negative and positive realities. A report of a series of studies supervised by the ILO in the 1990s on new technology and employment of people with impairments in France, Germany, Great Britain, Japan and Hungary, revealed that new technology had impacted positively on impaired users, increasing their capacity to function and widening opportunities (Hunt and Berkowitz 1992a). In France it had led to computerisation of activities and responsibilities in traditional occupations such as phonotyping, switchboard operating and physiotherapy (Scadden 1992), which had become more complex and required a better-trained workforce. The technology made people with impairments more efficient and the jobs more accessible to them.

Concurrently, in France it had also generated opportunities for more highly trained visually impaired people, in additional areas such as systems engineering, computer programming, systems analysis and word-processing. It was also opening up areas such as banking and insurance in Austria (Scadden 1992:42-45). Similarly, in Japan it enabled them to access areas such as computer programming, hardware and software manufacturing among various other professions (Okada and Yatougo 1992:99-101). At the time of the study, there were already 50 blind programmers in Japan, representing a departure from traditional employment fields in that country.

On the other hand, new technology had also erased traditional sources of employment for the less-educated blind individual. For instance, at the time of the study approximately 200 visually impaired telephonists in France had been trained in the use of computer technology and had not found employment as a result of automation in the field of telephone operating (Scadden 1992:40).

At a more personal level, the visually impaired have been employing specialised assistive technology in workplaces. The next section briefly recounts some of its effects on their workplace performance.

### **3.3.2 ACT and Job Performance**

Despite the apparent general agreement in the literature surrounding the potential personal benefits of computer technology use for people with visual impairments, there

have not been many empirical investigations into this matter. This section reviews some of the studies that have dealt in some way with ACT's impact.

Williams (1996:71), in a study of ACT's effects on the productivity and employability of visually impaired secretaries, managers and musicians, discovered that in regards to productivity indicators, such as time taken to complete tasks and the number of tasks completed within a given time-frame, most of the participants believed that computer technology increased their speed between 30 and 70 percent. Consequently, this led to marked increases in their quantity of output as well.

ACT enabled them to access print information independently and improved their ability to proofread, edit and correct their own work. Increased independence meant that they no longer had to depend as much on intermediaries for this kind of assistance and thus reduced the time taken to complete these tasks. ACT increased secretaries' ability to correct work on the computer, instead of retyping the entire document to insert corrections, or relying on sighted co-workers. Computers eliminated musicians' dependence on intermediaries to assist with playing instruments. Moreover, they enabled them to access information or music from the internet, as well as to store, retrieve and arrange music independently. Managers reported much the same, citing the ability to access, process, store and retrieve information independently. This reduced the time spent on soliciting help from intermediaries and decreased the time taken to produce their work.

The study suggested a possible relationship between the complexity of information required in the job and the extent to which this technology affected job-related task completion rates. It argued that the greatest impact was evident in the managers' category. This was probably explained by the fact that managers had a more complex relationship with information than either of the other two categories and therefore that increased access to information affected them more. For example, managers indicated that they had to engage in research, write reviews, and do projecting, budgeting, and planning for their organisations. These required precise and current information, which was often presented in print format. For the visually impaired individual who was unable to read print, this information was either inaccessible, or very difficult to access. With adaptive technology, that individual could access information quickly and effectively. In

the other occupational categories, interaction with information was less complex. Individuals were required to process and produce documents or musical pieces that were often presented to them in draft form. For example, musicians were given songs on tapes from which adjustments were made, while secretaries took dictation from their supervisors either directly, on cassette tape, or with the help of a dictaphone.

ACT also contributed to remarkable improvements in participants' work quality. At one level it had a compensatory aspect, reducing their disadvantages vis-à-vis their sighted counterparts. It narrowed the distance between the information they received and their performance of subsequent activities. At the second level, ACT enhanced final output in similar ways as for sighted people. It offered some computer-dependent options to impaired and able-bodied individuals alike. With this came an equal capacity to produce a comparable quality of work, through in-built facilities that improved the appearance of print documents, or spreadsheet programmes that did relatively accurate calculations, irrespective of the user (Williams 1996:79).

ACT also contributes to intangible aspects of empowerment. In his 1998 study, Roulstone found that use of computer technology enhanced the morale and confidence of users and allowed them a greater sense of equality with non-impaired workers. Furthermore, its use contributed to their increased ability to project an image which highlighted their abilities rather than their impairments and increased control over the way other people saw them.

At another level, Roulstone (1994, 1998) also discovered that new technology could remove three barriers to workplace participation: environmental, attitudinal and technical. By amalgamating a variety of tasks into a small workstation, new technology can create a microcosmic working environment. That is, it can bring together diverse tasks such as inputting, collating, filing, transmitting, retrieving data, communicating with databases and monitoring the user's performance. It contains the potential to reduce the physical demands of the work, such as the need to traverse long distances, to handle heavy files and to process a number of paper transactions. It also has the potential to increase the number of functions and skills in one coordinated work location, thus making employment readily accessible to workers with impairments.

Roulstone concluded that there was an overall reduction in mobility requirements. Here, new technology allowed a redefinition of the impaired person's working environment. More specifically, the "core text" (Roulstone 1998:129) of the employment domain had been brought closer to the impaired worker. Enhanced access to work was expressed in better access to filing, sending of messages, document retrieval, paper and text handling.

Technology can also be seen perhaps more fundamentally as a challenge to the attitudes held toward people with impairments. Technology can cause excluded and discounted abilities to surface. By providing a means of expression, the scope which technology offers for the realisation of abilities produces an altered perception of impaired people (Roulstone 1998). This idea was supported by other studies which found potential employers willing to hire computer-literate visually impaired people. A study conducted by Levy et al. (1993) in New York regarding employers' attitudes to people with severe impairments suggested that employers saw such people as dependable, productive workers, having the capacity to interact with others, and therefore employable, with the appropriate support services and equipment. The Williams (1996) random sample study of the financial sector in Jamaica reported that potential employers expressed an overwhelming willingness to employ suitably qualified, technologically trained, visually impaired individuals as they thought them equally employable.

Electronic equipment allowed for more user-friendly operations (Roulstone 1998). Participants in Roulstone's study utilised both mainstream and adaptive technologies to their benefit. The participants also reported that inconsequential adaptations of mainstream technologies, such as dots for home keys, enabled them to utilise the technology much more to their advantage.

These studies' conclusions were also supported by another undertaken by Tighe (1994). In his study among Canadians with a variety of impairments, he concluded that computer users had greater levels of employment and education than other impaired people in his sample. In addition, computer technologies appeared to have affected their lives in much the same way as they had the general population. However, the difference between the impaired and non-impaired was that the impaired worker could not perform work tasks without technology. Its impact was often dependent on individual needs and the type of impairment. Blind people or multi-impaired people seemed to have been impacted more

than people with hearing impairments, for instance. Use of technology also positively affected the overall quality of life of his study participants.

Thus far we have been extensively discussing the optimistic aspects of ACT's development for people with visual impairment. At this point however, we switch gears and move to consider the negative factors that limit ACT's benefits. As we noted in the introduction above, this aspect of the literature lies largely in the domain of social model writers who shun the "determinist" perspective that we have been outlining above. The next section reports on the literature dealing with barriers to empowerment through technology. Again, in the absence of specific literature concerning the visually impaired we consult the more general literature and cite their specific case as the literature permits.

### **3.4 ACT and Barriers to Empowerment**

This section explores the third major theme in the literature, the question of disadvantages and barriers that mitigate ACT's empowering potential. Blind and visually impaired people, like their other impaired peers, are still experiencing problems in maximising ACT-related work opportunities. For example, Feeney (2002) noted that despite the growing trend in the use of computer technology in higher education and the workplace, people with impairments, along with other groups such as women, older people and ethnic minorities, were noticeably absent from higher education courses and the IT workforce. Attributing this to media portrayal of computer technology in television advertisements, she concluded that the ads assumed a young, white, male target population. People with impairments were not represented in the ad sample, except in one ad out of 127, in which groups of people were shown interacting with ACT. Of the 201 ads showing individuals with ACT, none showed people with impairments. This amounted to marginalisation of such people in ACT-related advertising and consequently in ACT-related occupations not being seen as attractive to them.

This problem stemmed from the continued existence of the personal, programmatic and social barriers which occupy disability writers. Personal barriers arise from personal characteristics or lack of competencies, such as lack of motivation, interest or relevant

skills to perform job functions (Graves and Maxson 1989, O'Day 1999). Programmatic barriers also arise from programmatic factors such as the failure of rehabilitation and other services directed at employment. For instance, Freedman and Fesko (1996) identified inadequacy of knowledge about services as among the important factors preventing people from gaining employment. In the O'Day (1999) study of visually impaired people in the United States, only a minority of participants had developed basic computer skills and had access to the technology they needed to conduct online job searches, write resumes or demonstrate computer proficiency to potential employers. This was compounded by the fact that agencies involved in providing computers did so only after clients had obtained jobs. This was problematic as clients were usually unable to obtain jobs without ACT.

Disability writers have also highlighted social barriers affecting employment for impaired people. O'Day (1999) explained that social barriers stemmed from people's interaction with their surroundings and had little to do with their actual impairment, but with social responses to that impairment. These include negative public attitudes to disability, social stigma, discrimination, lack of access to technology and lack of public transportation (O'Day 1999).

At the social barrier level, social model adherents emphasise those barriers stemming from the broader environment. Some of these are structural, such as longstanding attitudinal barriers, structural and environmental barriers and entrenched hierarchies that restrict ACT's beneficial potential (Roulstone 1998). The next three sections look at some of the major barriers affecting blind and visually impaired people's ability to maximise this potential, as highlighted by recent studies.

### **3.4.1 Attitudinal Barriers**

Attitudinal barriers to ACT-related empowerment, argued Roulstone (1998:130), are the key factors limiting its benefits. They are also progenitors of others, such as environmental, technical and structural barriers. These must be located within the wider framework of the historical and social barriers generally attending the issue of employment for people with impairments (Roulstone 1998:31-32). In the workplace these people experience disabling attitudes mainly from employers, colleagues and professionals (Roulstone 1998:109).

These attitudes stem from general ones affecting access to empowering employment opportunities. They result from negative assumptions about impaired people's employment abilities and limitations (Roulstone 1998). Visually impaired people, whether well trained or not, experience discrimination relating to job acquisition, job retention and job satisfaction. Job acquisition discrimination is related to refusal to hire or rehire a person. Job retention discrimination includes unlawful termination, layoff, and refusal to provide reasonable accommodations. Job satisfaction discrimination refers to harassment and discrimination related to wages, promotions, and benefits (Rumrill and Scheff 1997, Rumrill et al. 1998).

Regarding job acquisition, social stereotypes and discrimination, reflected in the attitudes of potential employers, rehabilitation service providers and the general community, became particularly important inhibitors for visually impaired individuals (Crudden and McBroom 1999). Potential employers' negative attitudes were demonstrated in outright refusal to hire people with visual impairment despite their qualifications for the job, undue concerns and detailed questioning about issues unrelated to the job at interview and refusal to tolerate accommodations (O'Day 1999).

In instances where prejudice and discrimination from potential employers were not barriers to their employment, lack of knowledge and doubts about the capabilities of blind and visually impaired people became a significant inhibitor to their accessing employment (Young 1999). Still other employers expressed concerns about their productivity and ability to perform job functions (Baglihole 1997:4). Moreover, others had fears about blind workers' safety. This was especially evident where the work involved heavy factory equipment and factory type environments (Wolffe 1998).

Concerning job retention and career progression, blind and visually impaired people often had difficulties resulting from their impairment or from social responses to the impairment. Crudden and McBroom (1999:344), on the basis of a random sample study conducted among employed blind and visually impaired people, discovered that the overwhelming majority (82 percent) felt that their impairment was the main factor restricting them from changing jobs. However, this was followed by employer attitudes (27 percent). Employers' negative attitudes were often expressed in discrimination

relating to expansion of job duties, promotions and difficulties obtaining required ACT and accommodation on the job.

The question of ACT and job accommodation appeared a common problem. Difficulties surfaced where potential users' access to new technology was limited by employers' unwillingness to acknowledge the benefits of technology, by rehabilitation and vocational advisory services officials dictating the special aids "needs" of impaired workers, and by colleague antipathy to impaired workers receiving technology that was not available to able-bodied workers. O'Day (1999) found that many people experienced difficulty, in particular, in obtaining accommodations involving assistive computer technology. This was attributed to ACT's costs, to difficulty in obtaining training and in convincing employers to purchase the equipment.

Other attitudes involved those which prevented enabling technology use. Here again colleague and employer attitudes were seen to be linked with disabling behaviour, such as intransigence, demarcation and cultural and organisational exclusion. This limited ACT's potential for impaired workers, even where their use of it was significant (Roulstone 1994, 1998).

Disability writers caution that new technology, rather than being a means of empowerment for people with impairments, will, if managed within current negative attitudinal structures, lead to their disempowerment. According to Hunt (1995), rather than creating opportunities for people with visual impairment, new technology can lead to the emergence of new stereotypes, if built on existing philosophical foundations.

Similarly, Sheldon (2001:118), in her study of people with impairments in Britain, argued that although technology had made it possible to circumvent traditional barriers which keep people in their homes, it had left those barriers intact. While communication systems could enable contact with a world that can be inaccessible and even hostile if encountered directly, this "virtual" contact was not necessarily the same as the direct contact which impaired people were still being denied (Sheldon 2001:120). While access to technology was vital to increasing impaired people's participation, Sheldon (2001) maintained that direct access was also important. Her participants were also concerned

that technological solutions might be embraced at the expense of other wider issues of access.

These concerns can be seen to have some basis in reality. For example, as noted in Chapter 2 (section 2.2.1.1, p.38), many developed states made some attempts under welfare provisions to help people with impairments to gain employment. Despite their successes, unemployment among people with impairments in developed countries remained high (Scadden 1992:51). Similarly many French, German and Austrian companies refused to hire people with impairments, opting for payment of penalties instead. Therefore, many people with impairments did not compete successfully in the open labour market (Scadden 1992:50). Likewise, authors in the United States noted that despite advances in medical and assistive technology, disability-specific federal initiatives, and the ADA's civil rights tenets, people with visual impairments were unemployed and underemployed at rates much higher than for many other impaired groups. They continued to face discrimination in all areas of career development and the ADA, rather than decreasing the incidence of discrimination, served only to bring more such incidents to light (Rumrill and Scheff 1997). In Sweden wage subsidies eventually led to reducing income for people with impairments, as employers considered the subsidies part of their wage package during salary increase negotiations. Furthermore, they found it increasingly difficult to find and retain jobs because of attitudes, increased competition and shrinking public resources for financing social and economic support schemes (Michailakis 2001).

In terms of attitudinal barriers' effects on people with visual impairment, it is generally difficult on the basis of available empirical studies to tell how these are affecting them. This is because measuring the cumulative effects of such attitudes is difficult as statistics are rare and often based on small samples of data. The literature on technology for people with impairments is still lacking in careful study of the impact and implications of attitudinal barriers (Johnson and Moxon 1998:243). In addition, there are few studies relating to visually impaired people's situation. Notwithstanding Michailakis' (2001:483) confident assertion that it is a well known fact that information and communication open up great possibilities for people with visual and mobility impairment, as this chapter shows, specific studies of technology's effects on impaired people are few.

Despite the shortage of studies, Dobbs (1999) asserted that most people in the blind training field could not work without assistive technology, and Anthes (1998) speculated that blind professionals working with computer technologies were being short-changed in their jobs. They were overlooked for promotions, implying that their employability was still being hampered by employers' prejudice or lack of willingness to attempt to place them in new positions.

Apart from attitudinal barriers, blind and visually impaired people are often faced with other barriers stemming from the nature of technology development and change itself. The following section considers some ACT-generated problems.

### **3.4.2 The Technology Barrier**

Despite its beneficial potential, technology itself has proved contradictory in terms of the barriers it has erected for people with impairments. Roulstone (1998) divided these barriers into those arising from the nature of ACT itself and those stemming from the culture surrounding its benefits and use. The remainder of this chapter deals with some of these barriers.

The nature of both mainstream and specialised technology presents problems for blind and visually impaired people. Digital data representation in the form of the graphic user interface (GUI) presents challenges to specialised technology's ability to access it. Individuals are thus disempowered in terms of information access and their capacity to perform some tasks in a work setting (Chong 1996, Jolley 1996, DiDio and King 1998, Roulstone 1998). In much the same vein, Kerscher (1996) noted that the increasing shift away from specialised technology friendly languages such as Standard Generalised Markup Language (SGML) that are inherently accessible to alternative output format such as braille and text, towards more hostile languages such as HyperText Markup Language (HTML), an economically cheaper language, presents some challenges to adaptive technologies.

Secondly, specialised technologies themselves are also problematic. Speech, for example, is linear in nature, making it hard to skim as can be done with text, and has very strict limitations as to pace. It is also very passive in nature, so that the user can be forced to sit back and listen, not paying full attention and letting information pass by. This can lead

to inaccurate or piecemeal information. Further, synthesised speech requires effort to understand as even the best examples do not necessarily sound as natural as the human voice (although this is changing as technology advances) and may interfere with the user's access to information content (Brachacki 1999). Speech technologies are often incompatible with other software programmes. Finally, it is often difficult for the user to retain complex information, such as long strings of numbers, when using synthetic speech (Crandell and Robinson 1994:160).

The next section looks at wider issues surrounding the use and benefit of ACT.

### **3.4.2.1 Technological Change as a Barrier**

At the wider level Roulstone (1998) noted that the culture surrounding the use of computer technologies, such as rapid technological change, incompatibility of technology design and intensity of usage, also represented a potential barrier for people with impairments. This section explains how such barriers affect blind people's chances of maximising ACT's benefits.

For blind and visually impaired people the rate of mainstream technological change and the inability of specialised technologies such as speech synthesisers and braille output devices to keep up with the rapid changes in GUIs has resulted in some jobs and job tasks becoming inaccessible, and has worsened their employment prospects (O'Day 1999).

Rapid changes have also presented some people with negative psychological consequences such as fear, frustration and stress, as a result of having to adjust to and learn new specialised and mainstream technologies. Keller et al. (1999) found that blind and visually impaired people in Germany most frequently expressed fears centred on job retention, promotion and the expansion of self-reliance and opportunities through new technology. Other fears frequently mentioned were unemployment, extra work and overtime and the use of GUIs which would make data processing difficult for visually impaired people.

Dependence on assistive technologies prevents the visually impaired from obtaining and taking advantages of benefits provided by short-term employment. This is because temporary agencies are geared to quick placement and need to fill their clients' needs as

soon as possible, while for people who need complicated accommodations (such as screen readers or screen magnifiers) more time is required to acquire the technology (Farnsworth 1999).

Still other barriers continue to hamper ACT's potential. The next section considers the barriers of cost and ignorance.

### **3.4.2.2 Cost and Ignorance of Technology as Barriers**

Besides these technology-generated barriers, ACT's potential is hampered by underutilisation, costs and unawareness of its usefulness among people with impairments. Notwithstanding its beneficial potential, ACT is seriously underutilised in both developed and developing countries (Okada and Yatougo 1992, Uslan 1992, Morris 1996, Williams 1996). Where it is used, this usage appears to be skewed in favour of those with high incomes. Uslan (1992), on the basis of studies of computer technology use conducted in the United States, noted that high technology usage was directly related to higher category occupations. In other words, the people who used high technology solutions were those engaged in higher-income occupations, while at the same time those people engaged in low-income occupations were unaware of the technology or its potential benefits. The Okada and Yatougo (1992) study also reported that the extent of use depended on disability type. Thus, while people with a mental disability or hearing loss used ACT devices and equipment, very few people with physical or visual impairments made extensive use of them.

When they did so, as Lee (2002) found from a study of physically impaired people in Britain and Taiwan, they were restricted to more basic computer skills. Technology was most commonly used for learning about computers, word-processing and data recording. The second common use was text production, expressive writing, literacy, language and social skills. It was virtually unused for advanced technical skills such as programming. Most users were at a basic level. Skills were more likely to be linked to computer use for achieving educational goals such as learning to read (Lee 2002:151-2).

Underutilisation of ACT was caused by impaired people's and potential employers' ignorance about its benefits as well as by cost. In Japan, this problem was exacerbated by the economic unfeasibility of utilising mass marketing techniques to advertise these

products because of the variation in type and severity of impairments (Okada and Yatougo 1992). In Jamaica by contrast, lack of awareness was considered an inevitable part of general ignorance regarding the services offered by specialised rehabilitation institutions, which act as centralised providers and distributors for this technology (Morris 1996, Williams 1996).

Likewise, the cost of manufacturing and retailing the technology was a recurring problem. It was regarded as “a significant difficulty in the use of high-tech solutions for the disabled” in the United States (Crandell and Robinson 1994:168). In New Zealand the prohibitive costs of technology stemmed from those of acquiring and adjusting it, as well as from the costs of access to telecommunications technology such as the internet (Welham 1997).

Cost limitations were acutely felt in circumstances where government grants and public subsidies were absent and the individual was exposed to full costs. Morris (1996) found that in Jamaica cost was a significant barrier to technology acquisition and use, whereas in Western Europe, where government support was provided, costs were not recorded as an important barrier (Scadden 1992).

Up to this point in the chapter we have been describing first ACT’s potential, then some major barriers to its successful use. Although we have deferred to the dichotomy that appears in the optimistic and pessimistic literature, we believe that in reality this distinction is artificial and has limited usefulness for our analysis. This divide ignores the fact that despite their seeming irreconcilability both approaches have come to common conclusions about ACT’s value in empowering its users (Seale 1998:265).

In the final section we provide a summary of the thesis to date.

### **3.5 Summary and Conclusion**

This section presents a summary and conclusion of the thesis up to this point. We intended to explore ACT’s effects on blind and visually impaired New Zealanders’ empowerment, especially in the vocational context. Before moving to the actual case study we needed to outline some of the major theoretical concerns from the broader global environment. Although the thesis is mainly concerned with ACT and visual

impairment, since it is also a thesis in development studies, our investigation required examination of a broad and diverse range of literature to establish the core theoretical concern for the thesis, a task to which the first three chapters have been devoted.

In Chapter 1 we began setting the stage by defining empowerment and showing its relevance to visually impaired people. Throughout our discussion of general approaches to empowerment we noted that the debate and distinction were irrelevant and that reality was better reflected by combining the various approaches. It was also important that discussions of empowerment include the unique dimension and experience of impairment; consequently we combined the social and medical model approaches.

Chapter 2 continued the stage-setting as we tried to answer the question of who was to “do” the empowering. We looked at the role of various actors beginning with the state. Its role is important because it operates at the macro level and its policies impact the impaired population’s welfare situation. We argued that although the state underwent radical transformation under neoliberalism, its effect on people with impairments was relatively muted by its continued paternalistic, welfare-type response to them. NGOs on the other hand have had a long history of close personal contact with such people and their impact appears to be contradictory. In the first instance they have helped impaired people acquire basic skills to empower themselves. In the second, some traditional NGOs, cast in the charity model, have led to disempowerment of their target populations. In response to the weaknesses of both macro and meso level actors, people with impairments have organised themselves to contribute to their own empowerment. In that discussion we noted that the understanding, role and participation of visually impaired and blind individuals had been ignored in the debate regarding other social actors’ role in empowering them.

This was the significance of this third chapter, which focused the discussion on ACT and the individual. It continued the stage-setting by describing the literature surrounding ACT and vocational empowerment. This served two functions. Firstly, it introduced the fourth social actor - the corporate sector, which produces the necessary technology to enable blind people to access technological changes. In the second place it advanced our discussion by trying to outline how empowerment might take place as individuals interact with ACT.

We noted that although there was a general feeling that ACT can help blind and visually impaired people to empower themselves economically and make them less vulnerable to the flaws of state and other meso-level actors such as NGOs, this was not an agreed position in the literature. Instead, this position was hotly contested by the old-style, developmental, optimistic perspective and by the more social shaping and social model-influenced, pessimistic positions.

From the optimistic point of view digital technology appeared to hold great promise to free people from impairment-imposed problems in accessing information on one hand and to help them to advance vocationally on the other. To date its impact appeared to have had some positive effects on these individuals. However, as pessimists pointed out, it was clear that in order to realise its full potential, there was a need to overcome some of the barriers to its use and benefits which confront individuals.

Up to the end of this chapter, we have been setting the global context in which this thesis is situated. We now focus our discussion on the New Zealand context. This discussion begins in Chapter 4, where we first start to explain the situation confronting our study participants. Also in this next chapter we will describe the roles of these four social actors - the state, NGOs, social movements and the corporate sector. However, these actors will appear in their New Zealand guise. We will also home in on the individual's role in harnessing ACT's empowering potential in the New Zealand context.

# **CHAPTER 4: THE NEW ZEALAND CONTEXT FOR EMPOWERMENT**

## **4.1 Introduction**

Thus far we have largely been concerned with setting out the broad, general context for the research question. This chapter serves two critical functions. First, it looks back to Chapters 2 and 3, which introduced key players in the development and empowerment game generally, notably states, NGOs, grassroots self-empowerment movements and technology (and, by extension, the domain of private enterprise that develops and markets this technology). This chapter moves these actors from the global scene to give them a New Zealand face.

Secondly, during the heyday of the ACT revolution visually impaired New Zealanders were faced with a rapidly changing macro social and economic environment, mainly due to government policies and changes in technology. These changes provide an important backdrop to this study's investigation of ACT's impact on blind people's (vocational) empowerment. The chapter also sets the stage for the rest of the thesis, by providing the broad national context within which the individual actors appearing in Chapters 6 to 8 play out their personal dramas.

As yet, the story of ACT and visually impaired and blind New Zealanders is largely undocumented. Consequently, this chapter's story has been retold from a number of documented and non-documented sources. In view of the largely oral nature of the information available we have had to rely on the memories and experiences of participants to fill in gaps in the literature. In such instances, we have referenced the various personal and specialist (key informant) interviewees.

This chapter relates a history of the changes that have occurred in New Zealand over the past 20 years. Section 4.2 describes the computer revolution in New Zealand and its promise for visually impaired and blind new Zealanders. Section 4.3 discusses the state's provision for ACT access. The RNZFB's role is recounted through participants' eyes in section 4.4. Section 4.5 briefly looks at a self-help group's response. The corporate sector's contribution is outlined in section 4.6 and section 4.7 briefly deals with

individuals' participation in the empowerment process. Section 4.8 provides a brief summary of the thesis findings so far.

## **4.2 New Technology and Employment: The Promise for Visually Impaired and Blind New Zealanders**

New Zealand, like many of its OECD counterparts, leapt rapidly into the digital computer revolution. Having acquired its first digital computer from abroad in 1960, by 1962 it boasted 87 such machines. This relationship with digital technology continued throughout the 1970s as adoption of technology consolidated into wider usage by the private sector and especially larger firms. By the 1980s New Zealand had rapidly entered the information age (Beardon 1985).

Since then computers have had a dramatic impact on New Zealand workplaces, businesses, industry and jobs, leading to a dramatic increase in information-dependent jobs (Callister 1990). They have also led to flexibility in work locations with an increase in people working from home in areas such as small business management, clerical, sales and other people-oriented activities (Schoeffel et al. 1991, Loveridge and Schoeffel 1991). By 2003 New Zealand had a well-established computer software and hardware trade which had showed general favourable growth trends since 1993. Employment in the IT industry had also continued to grow, with the number of people working in an IT occupation and in the IT industry essentially doubling between 1991 and 2001 (Ministry of Economic Development 2003:18). New Zealand's household computer usage rates had also continued to grow by an average of over 10 percent annually from 1986 to 2002 (Ministry of Economic Development 2003). By 2001 access to telecommunications had improved to the extent that 92.3 percent of the population had access to a telephone and 35.9 percent to the internet (Statistics New Zealand 2001c), and most people could access the internet at home (Ministry of Economic Development 2003).

For visually impaired and blind New Zealanders this transformation occurred on two fronts. On one hand, they were faced with the general changes in mainstream technology that occurred in the wider society. On the other hand, they had to harness specialised technology developments to enable them to interact with mainstream changes. The remainder of this section describes their experiences of the ACT revolution.

#### **4.2.1 The ACT Revolution For Blind and Visually Impaired New Zealanders**

Before proceeding in this section to describe the ACT revolution for our study participants, it is worth noting that ready supply of technology on the international market and local distribution organisations in New Zealand made technology fairly accessible. Visually impaired people were faced with options from two technology markets, the mainstream and the specialised.

As with their sighted counterparts, visually impaired and blind people could access mainstream technologies from the general marketplace and general vending sources around New Zealand. However, for specialised or adaptive technologies, three main sources of technology were available to them and their organisations: Pulse Data International, a technology manufacturing and marketing company currently operating out of Christchurch; Zabonne, a technology distribution company operating out of Auckland; and other companies located in the United States and Australia.

These companies and agents supplied a range of products (already described in Chapter 3, sections 3.2.2, p.61, and 3.2.2.1, p.63) which largely catered for the varying degrees of visual impairment encountered among New Zealanders (see Appendix 3 for more details). These ranged from low vision aids such as magnification software and CCTVs for those with residual sight, to speech and braille input and output software and devices for the totally blind.

Companies and agencies tended to manufacture and/or distribute these products in either families or groups. For instance, at the time of the study the specialised technology market was divided into two main distributor groups between Pulse Data and Zabonne. Pulse Data, as we noted earlier, manufactured its own range of SmartView CCTVs and the ZoomText family of products. It also distributed speech software groups such as Window-Eyes and JAWS. Its competitor Zabonne distributed the Dolphin family of products which included software and devices for varying degrees of impairment.

Despite ACT's current availability, in the early 1980s when the revolution began this range of ACT technology did not exist. It was eventually developed to keep pace with the innovations in mainstream technology occurring during that time.

During this time blind and visually impaired New Zealanders, like their sighted counterparts, were introduced to the earlier types of computer that emerged with the Disk Operating System (DOS) era. Both groups of people were introduced to DOS-based technology, word-processing and spreadsheet programmes and early forms of the internet. This system was based on a command line prompt where users typed in the command they wished to execute.

DOS arguably levelled the playing field as it was oblivious of users' visual status. Consequently both sets of people were faced with relatively similar learning curves in relation to ACT changes and both had to keep pace with newer programmes and ways of using the technology.

The move from DOS to Windows effectively renewed a distinction between the situations of visually impaired or blind people and their sighted counterparts. For sighted people the development of GUIs (graphic user interfaces) facilitated their interaction with computers. This system, instead of being driven by a command line prompt like its predecessor, used a system of icons requiring users to point with a mouse and click on the function they wished to execute.

This increased problems for our study participants. Initially it made PCs inaccessible because they could not see graphics. It also made their existing adaptive software outdated and non-functional because it could not interface with Windows systems. In response, specialised technologies had to be created to interface with this new environment.

Moreover, their difficulties were compounded, as they not only had to keep pace with constantly evolving mainstream technology, but also with the add-on devices that gave them access to it. This problem was further exacerbated by the general disarray in the management of ACT during that time, since there was no organised system for harnessing ACT's potential. For instance, neither the state nor the Foundation had established either a policy or a technology training unit for ACT.

Consequently, study participants were left at the mercy of individuals who in some cases were themselves constantly scrambling to keep up to date. This situation worsened when the underlying operating system changed from DOS to Windows in the early 1990s. This

was because the few specialised technology instructors operating at that time were trying to learn the Windows environment for themselves, while simultaneously learning how JAWS worked. To further compound the difficulties, those sighted people who had mastered the mainstream technology did not necessarily know how the specialised technology worked. Conversely, advisers in the visually impaired and blind world who were acquainted with specialised technology were not necessarily conversant with the latest developments in mainstream technology.

Within this disorganised context, there were some haphazard efforts by a range of stakeholders to enable visually impaired and blind New Zealanders to harness ACT's potential. The remainder of the chapter describes the role of each of these actors. We look first at the state, because of the far-reaching consequences of its action or inaction in the empowerment process for our study participants.

### **4.3 The Role of the State in Harnessing the Empowering Potential of ACT**

So far in the discussion we have been looking at the situation confronting study participants during the ACT revolution. In Chapter 2 we established that the state in theory plays a critical role as facilitator of empowerment for people with impairments. In this section we consider the New Zealand state's response to the ACT revolution.

Visually impaired people's experience with ACT can be set against the backdrop of a long phase of incremental state interventionism beginning in the 1840s with the birth of the modern New Zealand state. The state's role has moved through three and a half historical phases.

*1. The minimal state (up to 1935).* During this period the state largely ignored visually impaired people's problems and left their care to voluntary organisations and charitable initiatives such as the Institute for the Blind, later the RNZFB (Catran and Hansen 1992, St John 1994, Newbold 1995, Tennant 1996).

*2. The welfare state (1938-1984).* In this phase the state took a more active role in their care. It established (and/or funded) a series of institutions, enacted some laws and

provided them with direct financial support through invalids' and sickness benefits (Newbold 1995, Tennant 1996, Lunt and Pernice 1999).

**3. *The neoliberal state (1984-1996)*.** This phase saw the implementation of community care policies (Boston 1991, Kelsey 1997). This meant mainstreaming of disabled children in schools, restructuring of funding sources and shifting of responsibilities from central government to regional bodies, among other changes (Tennant 1996, Biggs et al. 1998, Pernice and Lunt 1998, Lunt and Pernice 1999, Beatson 2000).

**3½. *The coalition (1996-1999)*.** This phase represents only a half shift from the previous one because the government had pulled back from a radical neoliberalist approach to a more centrist position (Kelsey 1999). This period has seen rapid shifts in government policies that have continued up to the time of this research. These policies also included a major initiative in the disability domain. The experiences narrated by study participants occurred during the neoliberal period. Just as preparation for this research was beginning in 2000, however, a new social democratic government came to power, and launched the New Zealand Disability Strategy.

This strategy promised a new deal for people with disabilities, led by the state. Accordingly it adopted a vision of an inclusive society that embraced principles including equality, partnership, mutually inclusive and supportive society, equal opportunities, respect for diversity and valuing the abilities of people with impairments (Ministry of Health 2001).

The New Zealand Disability Strategy, in fact, was a new development/empowerment initiative by government that, in theory at least, went considerably further than any of the piecemeal measures previously introduced on behalf of impaired people. This strategy represented a large-scale macro initiative within the traditional state-led approach to empowerment. However, because this initiative had only just been implemented when the present research was conducted, we have no way of knowing what effects it may have on blind and visually impaired people's long-term empowerment.

The research was necessarily retrospective: it was a snapshot of the "computer revolution" that occurred between the early eighties and nineties. The New Zealand in which this completed thesis is read, and the condition of people with impairments under

the brave new Disability Strategy, may be significantly different from the period it describes.

In the following section we look at specific state provisions that influenced, or may have influenced, visually impaired and blind people's access to ACT during the revolution.

#### **4.3.1 State Provision: Facilitating Access to ACT**

This section's main task is to describe state provisions in place at the start of the 1980s which may have had a bearing on the computer revolution. The period researched - roughly 1984 to 1999 - was a confusing time of enormous change, as state institutions, mechanisms and policies for welfare and health provisions were constantly subjected to massive reforms. It is difficult to give a tidy overview of the period, as things never stayed the same from one year to the next. As an illustration, consider this quotation from Dew and Kirkman's *The Sociology of Health in New Zealand*:

The organisation of healthcare institutions in New Zealand appears to go through constant kaleidoscopic change. To illustrate, in December 1988, twenty-nine New Zealand hospital boards were replaced by fourteen area health boards. In July 1993 the area health boards became four regional health authorities that purchased services, plus twenty-three Crown Health Enterprises (CHEs) (old hospitals), which were the state-owned service providers (Perkins et al. 1995). In the late 1990s the four regional health authorities became one health-funding agency, and the CHEs became hospitals again. In 2000, twenty-one district health boards were established, and the health-funding agency was abolished (Dew and Kirkman 2002:78).

As far as visually impaired and blind New Zealanders were concerned, perhaps the biggest change was moving from the domain of welfare to health in 1993. This movement resulted in the restructuring of disability support services. In similar fashion to those in the health sector, these reforms split the relationship between funding agencies and services providers in an effort to make service provision more flexible, efficient, cost-effective and accountable (Lunt and Pernice 1999). In July 1993 the regional health authorities (RHAs) took responsibility for disability support services previously funded through area health boards and the Department of Health. They were expected to ensure

that the services provided were in accordance with contract specifications. They were also to ensure that the levels of entitlement matched previous ones under the Disabled People Community Welfare Act 1975. Other services (information, attendant care and funding) were mainstreamed and shifted to Work and Income New Zealand (WINZ), now the Department of Work and Income (Tennant 1996, Biggs et al. 1998, Lunt and Pernice 1999).

The ACT revolution corresponded to this time of continuous radical change and it was difficult for people with impairments, even professionals in the health and welfare fields, to keep up with the changes. Further, at the time of conducting the research, the Labour-led government of Helen Clark was launching another period of wholesale change. It is not our purpose in the thesis to give a detailed account of all the changes from 1984 to 1999, especially as the evolving system of that period has now again been supplanted by the new reforms launched in 2000. Instead, we will step back from all the surface turbulence and simply attempt to summarise the state provisions which were on hand throughout the period to enable visually impaired and blind people to benefit from the ACT revolution.

During the period under study, the state provided mainly financial support to enable visually impaired and blind people to access ACT. This support came in various forms and through a variety of mechanisms, such as WINZ, ACC (Accident Compensation Corporation), the RHAs (which became the one health funding agency in the latter 1990s) and the education sector. These resulted in a series of funding sources being available:

**1. Benefits.** Visually impaired and blind people received these from the 1920s, and were exempt from work-related means tests from the 1950s. This exemption meant that those participants who were in paid employment when ACT came on the scene had some surplus income to experiment with. The Invalids' Benefit was worth over \$7000 per year - enough to enable those who were working to access ACT.

Employed visually impaired and blind people were thus empowered by the state to purchase hardware and software, through what in effect was a "cost of blindness" concession. This was not the case however with their unemployed counterparts who

needed all of their Invalids' Benefit just to survive. If they wanted ACT, they would have to get alternative funding, most likely from the state.

**2. State equipment grants.** The state had mechanisms in place throughout the 1980s and 1990s - even though these mechanisms may have changed their location and name - to allow visually impaired and blind people to purchase specialised technology. Some of these were:

- Equipment Management Service (EMS), now Enable Funding. Funded out of RHAs' budgets, this service provided funding allowing visually impaired and blind people to purchase necessary equipment for education or employment purposes (Pernice and Lunt 1998). This was clearly within the instrumentalist approach to development, as individuals were ineligible for funding outside these purposes. Furthermore, there was the anomaly that it only funded people doing voluntary work if they lived in the South Island.
- Workbridge. A job-support grant provider established in the early 1990s, this offered a range of financial supports to help people access and retain jobs. These included provision for equipment to make work accessible to visually impaired and blind people (Pernice and Lunt 1998).
- ACC (Accident Compensation Corporation). Established in the early 1970s, it provided 24-hour no-fault accident compensation and rehabilitation coverage for all New Zealanders and engaged in injury prevention, rehabilitation and compensation for injuries (Pernice and Lunt 1998). It provided funding (including for equipment) for those who lost their sight through accidents.
- Education. Some educational institutions set up special services for visually impaired and blind students. In other instances students could access equipment funding through Special Education Services (SES).

As we noted before it is not our intention to give a detailed account of constantly changing state institutions, policies and mechanisms. The main point is that if visually impaired and blind people could prove to someone (usually needs assessors) that they

needed ACT for “development” purposes (not just recreation or intangible self-empowerment), then state funds were available.

The requirement to prove a need made needs assessors crucial to the individual’s capacity to access funding. They were the all-important gatekeepers into the domain of state funding for ACT. The state had delegated needs assessment functions to a diverse variety of bodies, generically known as NASC (Needs Assessment and Service Coordination). For the state’s purposes this arrangement was efficient and compact. Regardless of the angle from which individuals approached the state - EMS, Workbridge, ACC, education or the Foundation - needs assessment was still required.

Other sources of funding for visually impaired and blind individuals were accessible through the Foundation, research initiatives at universities and low vision clinics. The first of these three, the RNZFB, was partially direct funded by government. Although this direct relationship changed with the restructuring that occurred in 1993, nonetheless it was still possible for visually impaired and blind people to access ACT courtesy of funding allotted to the organisation by the state.

Secondly, the state indirectly funded ACT development through funding of mainstream universities, which researched and developed ACT. One such example was that of Professor Leslie Kay in the Physics Department of Canterbury University, who spent decades researching and developing electronic technology for the blind, in the form of navigation aids such as the BAT ‘K’ sonar cane (Bay Advanced Technologies 2003).

It was through Kay’s work with academic collaborators that it began to dawn on a small number of people that there were niche commercial opportunities for blindness technology in the local and overseas market. This same idea motivated other firms such as Wormald International Sensory Aids (later Pulse Data International), which developed pioneering technologies in the form of the BrailleNote and the KeyNote. These technologies had a huge impact, at least for a few years in the later eighties, on those visually impaired and blind New Zealanders who had developed an interest in exploring the possibilities of talking computers.

The third case was the use of other structures such as Low Vision clinics. Through this structure enterprising individuals accessed state funding on behalf of visually impaired and blind people.

Apart from its role as a major funding source of ACT the state, as we have already related above, effected a variety of policies and legislation that governed the funding and management of people with visual impairments. One policy that directly impacted their ability to maximise ACT was that of accessibility for government websites. At the turn of the century the New Zealand government committed itself to making all its own websites accessible to the visually impaired. This followed similar moves in the United States, Australia and elsewhere. Under pressure from lobby groups of the visually impaired and blind and their sighted allies, governments bound themselves to take into account the nature of screen readers.

To summarise, the state does not appear to have played a direct role in ACT creation or promotion. Nevertheless, through its structures it seems to have been a key player in funding ACT access and use. The state's main direct empowering function was to have set in place, before the advent of ACT, two forms of funding that would allow visually impaired and blind people to experiment with the expensive new technology. First, it gave them a benefit that was not means-tested if they had paid employment. They thus had more disposable income - not available to those with other forms of impairment - for purchasing and experimenting with assistive technology.

Second, it had established equipment funding mechanisms that could be used to purchase ACT. These mechanisms had not been created with ACT in mind, as the new technology did not exist when they were set up, but they could be (and were) adapted to cover expenditure on ACT. The state was thus reactive rather than proactive, but it nevertheless played a crucial role for many visually impaired and blind people in bridging the gap between their slender finances and the expensive new technology.

In all this, there was a convergence of philosophy between the state and those who developed ACT. Both sides - private enterprise and the state - hailed the computer revolution's "development" and "empowerment" potential. This fitted in well with state policies dating from the 1970s, even though the philosophy underlying these policies

changed markedly from social democracy to neoliberalism. Whether it was the benign drive for “participation” of the seventies, or the tough love insistence on self-help in the nineties, the state wanted visually impaired and blind people - like all state dependents - to be self-sufficient in the mainstream national community. ACT fitted this agenda perfectly, as it was the most empowering innovation they had ever experienced.

The major problem in this was that the development the state envisaged was limited to the two overtly utilitarian ends of education/training and employment. The state was prepared to fund ACT if the needs assessor endorsed the visually impaired person’s application for funding, and this endorsement in turn depended almost entirely on the applicant’s vocational aspirations. Individuals could not, and still cannot, get state funding if it is non-utilitarian self-development and empowerment they envisage. They have to demonstrate that their acquisition of ACT is for some tangible goal. It is not enough to argue that it can immensely enrich the quality of their own personal life, regardless of its vocational benefits. Thus, the state has arguably limited ACT’s potential benefits by taking a narrowly instrumental approach to empowerment.

Having assessed the role of the state, we now look at a second actor, the NGO, and its impact on ACT-related empowerment of visually impaired and blind New Zealanders.

#### **4.4 NGOs and Empowerment of Visually Impaired and Blind New Zealanders: The RNZFB**

In Chapter 2 we described NGOs in general. Now we are going to focus on the one NGO in particular which has been the major player in the blindness welfare provision game in New Zealand. Historically this organisation has been a key facilitator of blind and visually impaired people’s personal empowerment.

Owing to the state’s initial absence from direct welfare provision for visually impaired and blind New Zealanders (Newbold 1995, Tennant 1996), the Institute for the Blind (now the RNZFB) stepped in to fill the gap in service provision. It became their main source of economic assistance. It was sole welfare provider, main employer and dominant means of placement in external employment for visually impaired and blind people of all ages. It cared for their main material needs such as financial “welfare” payments, health and education, for intangible well-being provision such as recreation

and for other areas that improved their quality of life from infancy to old age (Newbold 1995).

However, in the absence of alternatives they were to become extremely dependent on the Institute's services and their lives became controlled by the executive director and the mainly sighted board members. The Institute was home, workplace, school and the centre for leisure activities for blind New Zealanders all over the country (Catran and Hansen 1992:23-4).

The role of the Institute, now Foundation, had however changed significantly by the time of the ACT revolution and the period we are now describing. By that time, it had shed much of its aspect as universal services provider. Visually impaired and blind children were largely being educated in mainstream schools (except for the severely impaired ones who still went to Homai),<sup>12</sup> the workshops were being closed down, the residential hostels in Newmarket were being phased out and the visually impaired and blind old people's homes were shut down.

Nonetheless, the fact remains that the blind welfare game in New Zealand was still monopolised by the RNZFB. Ever since the Jubilee Institute<sup>13</sup> was founded in 1890, it had been assumed by successive governments, by visually impaired and blind people themselves and by the general public that anything to do with blindness would be referred in the first and last instance to this one organisation. Although governments gave blind people a non-means-tested benefit, they more or less handed over responsibility for their welfare to the RNZFB.

More generally, in the general public's mind blindness issues and the Foundation were virtually synonymous, and despite its reduced role it still impacted on public perception of blindness in the more subjective sense (Small 1998). This situation was reflected in some study participants' experiences. Bob recalled that when he was trying to set up ACT to enable him to exchange work-related emails with his colleagues, his

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<sup>12</sup> Homai College was a specialised school for children with visual impairments, run by the RNZFB.

<sup>13</sup> The current RNZFB, beginning in 1889 from a group of well-wishers called the Friends of the Blind, was named the Jubilee Institute for the Blind in 1890. It subsequently underwent a series of name changes, to the New Zealand Institute for the Blind in 1932, the New Zealand Foundation for the Blind in 1955, and the Royal New Zealand Foundation for the Blind in 1972. Its name was last changed in 2002, to the Royal New Zealand Foundation of the Blind.

organisation's computer services department refused to help him. Instead, it referred him to the Foundation. At that time the Foundation did not have adaptive communications services in place and could not have helped. As far as Bob's colleagues were concerned, however, he was the RNZFB's responsibility because of his blindness.

Thus, both in fact and in people's imagination, the Foundation was the most prominent player in the blindness welfare game. Consequently, if the Foundation did not help, no one would. It was simply assumed to be the universal provider. In the next section we look at the Foundation's structure and functions.

#### **4.4.1 The Foundation's Structure and Functions**

This section provides a brief description of the Foundation at the time research was undertaken. Since the RNZFB Act 2002 some changes have been made to its structure, so that it now has a board of directors instead of a board of trustees. During the ACT revolution there was a trust board, comprising mainly government appointees, representatives from the Association of Blind Citizens of New Zealand (ABC) and from other sectors such as education or advisory committees (RNZFB 2003b).

The Foundation's main administrative business was delegated to its Chief Executive Officer, who thus tended to dominate the organisation's operation and ethos. The head office had a number of divisions, including Adaptive Support, Blindness Awareness and Prevention, Corporate Services, Fundraising and Quality Assurance. Within these areas it offered or subsidised a range of services including rehabilitation training, low vision services and clinics, vocational guidance and placement, library, accommodation (hostels, apartments, day services, and community living programmes), subsidised transportation (travel warrants, bus passes, and "total mobility" taxi vouchers), aids and appliances, social work services, recreational programmes and facilities, financial assistance (educational grants and scholarships, subsidies, grants and loans), information services (newsletters, a telephone news service and teletext), children's education, community relations and fundraising programmes, and advocacy with governmental agencies (LaGrow et al. 1990).

It had branch offices in main cities such as Palmerston North, Wellington and Christchurch. Each region had an advisory board, mainly made up of "lay" people, such

as parents of visually impaired and blind children or others with some personal interest in blind welfare. It was an organisation with a nationwide presence, but its main nerve centre was its head office in Auckland (LaGrow et al. 1990). At the time of research it had 18 offices throughout the country.

It employed a professional staff (over 300 during the research period) to perform its various functions. Prominent among these was fundraising, a major functional requirement, as the Foundation depends in large part for its financial viability on charitable donations, benevolent patrons and bequests. As mentioned above it also received some financial support from the state in the form of contracts and payment for services. As well as the career managers and professionals it employed, the RNZFB relied heavily on unpaid volunteer workers to perform a variety of functions ranging from collecting donations during Blind Week to answering telephones in branch offices and driving its members around.

The following section describes the RNZFB's role in the ACT revolution.

#### **4.4.2 The Role of the RNZFB in the ACT Revolution**

In this section we try to reconstruct, mainly from interviews, the Foundation's role in the ACT revolution. It appears that the Foundation, although the sole provider of rehabilitation and adaptive services (which affected the daily functioning of visually impaired and blind individuals) was slow to harness ACT for its clients. Overall, as we shall see below, it made only piecemeal attempts, mainly through the efforts of visually impaired and blind individual workers, to help its service consumers to access and make use of ACT.

From personal interviews with study participants it seems that the Foundation did not play a significant role in enabling them to access ACT in the revolution's early days. For example, in response to questions about how they initially became involved in ACT, only four of the 49 interviewees mentioned the Foundation among their initial means of introduction to ACT. Instead, by far the majority were introduced to ACT through alternative means such as paid and voluntary work (19 people), educational programmes (17) and other means such as personal curiosity, friends and family (10).

Despite the organisation's lack of involvement in introducing ACT to our study participants, it engaged in some sporadic and mainly reactionary efforts to enable them to access ACT's benefits. First, because of the wider funding structure and its perceived role as caretaker for the blind at the time, it could help enterprising people in four ways:

**1. Provision of needs assessment services** to those who wanted to access the various state-provided sources of funding. From a purely administrative point of view, this was a very strategic role, but it did not require the Foundation to be proactive in any way. It merely responded, via its needs assessors, to people who applied for funding. This role had become so prominent that by the time the study was undertaken in 2001 the Foundation, (although not the only source of needs assessment) exercised a virtual monopoly over the range of technology assessment services for visually impaired and blind people and was critical to their ability to access ACT through state funding sources.

**2. Training provision.** This was undertaken in two ways. Firstly, training was done by individuals from the Foundation. Its web page reported that "Until early in 2002 staff visited members in their homes or workplaces to give support one-on-one with adaptive technology. This method was not very effective as there were only five staff in the entire country" (RNZFB 2003a). Along with its own staff, in early 2000 it contracted out ACT training to companies such as Out of Sight which also provided one-on-one training for visually impaired and blind people.

Second, in the late 1980s the Foundation also attempted more formal class-based strategies, which failed. It organised a training course with the Auckland Institute of Technology (a mainstream institution) to offer free DOS skills training with specialised technologies such as speech systems. This saw 180 blind and visually impaired graduates over the four years of its existence. By the fifth year of its operation, however, the programme had closed. According to Thean Lye Ong, the Foundation had begun to notice a marked drop in participation and interest among blind and visually impaired people:

Towards the end of the fifth year I found out that we could not get enough members to do the course. I suppose mainly because those of them who were interested, all of them had already done the course and also the course

was held in Auckland. It was a national course, in terms of people from all over New Zealand could apply. But they had to come to Auckland for two weeks (\*A, 15 February 2001).<sup>14</sup>

In view of these past failed attempts, the RNZFB's web page reported that in 1999 it recruited an adaptive technology expert from California. Harris Rosensweig "adopted a fresh approach of combining classroom-based training with one-on-one support - individualised teaching in a group setting" (RNZFB 2003a).

**3. Creation of email lists and groups.** In the late 1980s, mainly due to the work of Clive Lansink (a blind IT manager) the Foundation began to use email lists. Undertaken on Lansink's own initiative, this was not formally adopted as part of official strategy or policy. Nevertheless, throughout the 1990s use of this list service grew so that by the time the study was conducted Rhona, a senior Foundation worker, could boast:

Our culture is very driven by email and in New Zealand we have been providing access to email for lots of blind people outside the Foundation for the last 12 or 13 years, I would say long before the internet was started. So we've done a lot of work to enable people in New Zealand to get up and running with email (#1, 13 February 2001).

In one sense this boast could be seen to be true. By the time of this study, the Foundation had established the Assistive Technology Interest Group (ATIG) list among other general ones. Hosted by the Foundation, it enabled visually impaired and blind individuals to request help and advice from their peers. According to Thomas Bryan, a senior communications instructor, ATIG was created to address the need for information help services relating to small problems not being addressed anywhere else in New Zealand at the time (Bryan 2001). It was also intended to provide assistance to people who were in relatively isolated locations and thirdly to provide a network of support for technology users and encourage interaction among them.

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<sup>14</sup> Excerpts from interviews are presented with minimal editing for readability. To make referencing easier, each excerpt is assigned a letter (for specialist interviewees) or number (for personal interviewees), following the sequence in which it appears in the text. Specialists are identified by their correct names and personal interview participants by pseudonyms (see Appendices 11 and 12).

From study participants' perspective, this email service was very useful for informal training and sharing of knowledge and information regarding ACT. Reggie explained:

Well here was a number of blind people who were also at the same time learning technology. So there was a great support among blind people. And then what happened was the email system was made available in the DOS environment through the Foundation. So I accessed that as well. And so a lot of exchange of information started to occur between blind users (#2, 28 February 2001).

The main drawback of this system was that it was haphazard and unsystematic. Consequently the assistance offered to ACT users was unpredictable and dependent on the availability of other knowledgeable users at the time. Nevertheless, although it was essentially an in-house affair it prepared them for use of wider area networks like the internet emailing system.

**4. *Influencing the direction of technology adoption.*** Although it had not necessarily adopted targeted approaches to ACT promotion, the Foundation, by virtue of its central role as service provider, wielded some influence over the process of ACT adoption. It provided its own visually impaired and blind staff with specialised technology enabling them to move into the computer age. Essentially this pulled the remainder of the blind community along with it. These workers developed skills through using the technology. They then passed on both technology and skills to blind Foundation members through the needs assessment process and training courses.

This for example was how the organisation both shifted the blind community into the Windows environment and influenced the choice of JAWS as a prominent speech reader. The switch from DOS to Windows occurred when Clive Lansink, in his role as the IT manager, having delayed this move until the specialised technology had become available in the mid-1990s, pushed the Foundation into the Windows era.

The Foundation placed a bulk order for JAWS when it made the decision that its whole system would have to move to the Windows environment. This meant it effectively converted its visually impaired and blind employees - even those who were already using Hal or Window-Eyes - to JAWS, as they had to use it at work in the Foundation. These

changes filtered out to the blind community as through assessments and training processes the staff encouraged their clients to keep up with ACT changes.

The Foundation, as we saw above, increasingly began to become involved in the revolution. Finally, as the nineties went on and more of its service consumers began demanding its help with ACT, the Foundation finally got its own act together. By 2001, it had at least the following set in place:

- An adaptive technology section, headed by Harris Rosensweig, with three adaptive communications instructors including one helpdesk specialist.
- A special section of its telephone service dedicated to ACT.
- An (irregular) ACT newsletter, which could be heard on the above phone service.
- Regular training courses in Auckland and Wellington. These were ten-week part-time courses, free of charge. Later it introduced an intensive one-week full-time course in Auckland. The training was NZQA-recognised<sup>15</sup> and partly public funded. All training staff members were NZQA-accredited. In the first year there were 39 graduates from the Auckland course alone.
- Two instructors to be appointed by 2004, one in Wellington, the other in either Christchurch or Dunedin. These mobile trainers were to visit people's homes, schools and workplaces, assess their individual needs and ensure that they accessed the most appropriate equipment for their personal needs (RNZFB 2003a).

This last, however, happened after the research period. To return to our main focus, in the 1980s and 1990s the Foundation appeared to be largely responsive rather than proactive regarding changing technology and its potential for the wider community. From participants' perspective this lack of proactivity was especially keenly felt because it was apparent that the Foundation had recognised the benefits of ACT for its staff, as described above. Moreover at the time of the ACT revolution there had been a radical

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<sup>15</sup> New Zealand Qualifications Authority.

philosophical shift, both at the wider macro level and in the more immediate disability social philosophy, from institutionalisation and welfare maintenance to “development”, “empowerment”, “participation” and “inclusion”. By the 1980s the ideal was that visually impaired and blind people should be out in mainstream society, developing their talents and participating in ordinary community life. ACT had begun to promise them the opportunity to do this.

While we have not been able to determine exactly why the Foundation was largely apathetic about ACT’s potential in the early days, from participants’ perspectives (both within and outside the Foundation) we have constructed possible explanations. As we see below, these appear to involve similar problems to those affecting many organisations engaged in development work.

Chief among the explanations proffered was, firstly, organisational inertia. This was seen as largely due to a leadership structure dominated by mainly sighted people who did not fully understand the benefits of ACT to blind and visually impaired people. For example, this may explain why, despite individuals within the Foundation (such as Clive Lansink) quickly recognising ACT’s potential, their pioneering zeal and experimental curiosity apparently did not communicate itself to the upper echelons of the managerial hierarchy, nor to the board of directors.

Another possible factor was restrictions of funding and limited financial resources, and the consequent ordering of priorities. During the ACT revolution the organisation had begun to face funding problems. By the mid-1980s, it closed down its old people’s homes, then sheltered workshops, as they were too much of a drain on limited resources. In the 1990s, it had to retrench its equipment services: Foundation shops around the country were shut, and sales were centred in Auckland. Its talking book division was also strapped for cash, and threatened at one point in the 1990s to introduce user part-charges. Its client base was increasing - notably with the increase in the elderly population - and its finances did not keep pace. It was having problems maintaining what were considered core functions. It would have been understandably reluctant to embark on a totally new venture like the promotion of ACT, involving the hiring of a completely new tier of specialist staff, when it was struggling to fulfil its existing responsibilities.

Even so, during the period in question the Foundation was the one organisation above all others that had taken upon itself the responsibility for visually impaired and blind New Zealanders' well-being, yet it did not do nearly as much as it ideally should have to recognise and promote the liberating capacity of ACT. They had to find other sources of assistance, which we will discuss in section 4.7 (p.109). Before this however, we will briefly look at the ABC's role in the revolution.

#### **4.5 NGOs and the Empowerment of Blind New Zealanders - The Self-Help Group: The ABC**

The role of the ABC (Association of Blind Citizens) deserves a quick review as it was the most prominent self-help organisation for the blind in New Zealand during the ACT revolution. Formed in 1945 (out of disgruntlement with the Foundation's services and operation), the ABC among its various causes made reforming the Foundation a priority during the next half century. Throughout its existence the ABC's influence had noticeably accelerated improvements in the welfare of blind New Zealanders. This had become so successful that no decisions regarding them were taken without its input (Newbold 1995, Sullivan 2001:102).

Notwithstanding this success, it seems that the ABC did not immediately make a collective thrust to encourage the Foundation to make ACT adoption a priority. This was apparently because it had not shifted its original priority from the Foundation itself, even though it did undertake some lobbying at wider governmental levels on behalf of issues for the blind. Participants explained that the main reason for the ABC's existence - dissatisfaction with the Foundation - remained a priority even during the ACT revolution. Indeed, from the mid-1990s, the intensity of the ABC's dispute with the Foundation trust board increased considerably. It was fighting not just for representation but also for absolute self-government. This campaign lasted for over five years, always dominating the ABC's agenda. Under these circumstances ACT was not made a priority.

Participants' observations appear to have been largely correct. Although in the late 1990s the ABC (mainly through the efforts of its president Jonathan Mosen) began to lobby the Foundation for the establishment of an adaptive technology unit, its main role so far has been responsive rather than proactive. For instance, by 2001 it had only begun

to make use of email technology as a means of communication. According to the organisation, this happened in response to the increasingly widespread use of this technology among its visually impaired and blind board members (Wilkinson 2001).

Arguably the ABC's role may have been shaped by its nature and limitations. First, the ABC is not and never has been a service provider. It is a cross between a trade union, devoted to obtaining better services from the Foundation for its members, and a social movement dedicated to the politics of visually impaired and blind identity, with the Foundation's governance as its main concern. It has only once provided a service itself, in the form of a tape magazine service offering current information through recording of magazines on cassettes. This service soon strained its resources and in 1986 was handed over to the Foundation (Newbold 1995).

Dependent on the Foundation for its funding, the ABC did not have the resources or the mechanisms to actually supply its members with ACT, nor to provide training courses. Where it could perhaps have been more proactive was in speedily bringing systematic and sustained pressure to bear on the Foundation to promote the new technology more actively.

In the absence of systematic organised attempts by the state, the Foundation and the ABC to harness ACT, in the constant change and uncertainty private sector companies and individuals seem to have assumed the lead. The remainder of this chapter deals with the indisputable importance of private sector companies and individuals in addressing this situation. The next section looks at the companies which played a pivotal role in blind New Zealanders' technology adoption process.

## **4.6 The Corporate Sector as an Ally in ACT Adoption**

Although the state was important in bridging the financial gap between expensive technology and visually impaired and blind consumers and the Foundation had some influence in fostering an ACT culture, it was private enterprise that was by far the most important player in spearheading innovation and technology adoption. This section explains briefly how this occurred.

As we pointed out in Chapter 3 (section 3.2.2, p.61), the actual drive to create specialised technology that could keep pace with mainstream technological change was spearheaded by a number of private sector companies. These companies developed the various technologies currently used by visually impaired and blind New Zealanders.

The main player in the technology manufacturing market in New Zealand was Pulse Data International, which started out in 1976 as Wormald International Sensory Aids. Emerging from the electrical engineering department of Canterbury University to commercialise research into sonar guidance devices for the blind, this company was founded and managed by Dr Russell Smith, who subsequently led a management buyout in 1988 to create Pulse Data International (IEEE 2003).

Pulse Data International gave impetus to the ACT revolution because of its strategies and activities. It initially developed and sold its own brands of specialised technologies in the form of the sonic guide products. These were mobility aids that warned the user (by a variety of signals) about the presence of objects in the vicinity. It then moved into low vision aids, and on to speech products in 1985. It was one of the first companies to have a portable talking computer. Since then it has developed its range of products and branched out into its CCTV and note-takers range. The company is now recognised as the technology leader in the field of information access for the blind, and exports over \$50 million in products each year (IEEE 2003).

In addition, it became the sole licensed agent and distributor in New Zealand for leading brands such as Kurzweil products and JAWS. This was important because JAWS has come to dominate the speech technology scene (see Appendix 3). This came about because Pulse Data established a good reciprocal relationship with the RNZFB, which gave it an assured market not just for products it developed itself, but also for those for which it held the importing license. It also accessed other benefits such as beta testing of its products by RNZFB staff and the Foundation's eventual use and promotion of its products, such as KeyNote and later JAWS when it switched over to the Windows environment.

Another way in which the company facilitated the revolution was its engagement in ACT training. In the revolution's initial stages, as reported in section 4.2.1 (p.87), ACT

training in New Zealand was either non-existent or very ad hoc. There was also the problem of lack of specialised knowledge. Consequently, Pulse Data International began to offer training in both specialised and mainstream technologies (Burgess 2001, Sloane 2001).

This company was valuable for two reasons. First, its location in New Zealand in the early days gave a great boost to the visually impaired and blind community's ACT consciousness and access. Even though other alternatives existed, these were mainly external sources in overseas markets such as the United States and Britain, which were not immediately available.

Second, it raised the question of the nature of the companies involved in ACT development for visually impaired and blind people. General approaches to development studies, when considering technology as the means of achieving development ends, are usually concerned with vast capitalist corporations flooding the world with mass-produced products, which have the potential to transform the face of society and to generate vast wealth for the commercial firms that manufacture and market them. What drives the production of such technology is mainly the profit motive, although its marketers may proclaim the benefits it allegedly brings.

The makers of ACT may be a different kind of company. They appear, at least in theory, to be committed to empowering their consumers through their products, thus adding a commercial dimension to a philanthropic endeavour. As Morris Sloane (BrailleNote product manager at Pulse Data International) expressed it:

I think the culture of Pulse Data is we're not just here to make money. I mean if you wanted to do that you would be better off doing other industries. Our point of view is that it is quite an ideal business for New Zealand because it is quite a niche, not mainstream like something like Sony, it's a lot of sort of specialised knowledge built up over the years. So, from the New Zealand perspective it's quite an ideal niche to be in. And that satisfies our end of things in that we like to be in the high technology side of it, the helping people and we can probably make some money out of it along the way (\*B, 23 April 2001).

Although these companies are commercially driven and international in scope, they have led the way in developing means to overcome blind people's longtime alienation from a print culture often shaped by mainstream technological developments driven by big corporations. In the space of less than 20 years, they have tried to expand visually impaired people's horizons and empower them to participate in mainstream society and culture in a way they could not have conceived at the start of the 1980s.

Despite this possible difference in nature, however, as we shall see in Chapter 8, market structures and the nature of the products these companies make still result in negative situations for visually impaired and blind New Zealanders.

In the next section we consider individuals' role in harnessing ACT.

#### **4.7 The Role of Individuals in ACT Adoption and Innovation**

So far in this thesis we have been examining the roles of four key stakeholders - the state, NGOs, self-help organisations and the corporate sector - in helping to empower visually impaired and blind ACT users. Underlying this discussion is an implicit assumption of these people's role as passive recipients of empowerment efforts (Servian 1996).

In reality, for empowerment efforts to be effective, their targets must themselves be active participants in the process. This is the viewpoint we have adopted in our alternative development approach. Thus we will now describe visually impaired people's own part in initiating innovation and adoption of ACT.

Individuals who played key roles can be grouped into two categories: those who recognised ACT's potential and tried to harness it for the entire group of visually impaired and blind people; and those visually impaired and blind people who attempted to master the technology themselves, independently of organised structures of learning.

In the first group there were two different sets of people, those who were visually impaired and blind and their sighted sympathisers. Prominent visually impaired people such as Jonathan Mosen, Clive Lansink, Vic Sinclair and Ivan Pivac employed various strategies to make ACT's potential available. These included:

**1. Creation of a training company.** Jonathan Mosen, apart from lending informal support to other visually impaired and blind people and advocating for assistive technologies to be more widely adopted, established his own ACT training company in the late 1990s. This company, Out of Sight, provided technology training face-to-face within New Zealand and via the internet to people from most English-speaking countries. It engaged in web design consultancy for both public and private sector entities, administered the American Council for the Blind's websites and ran internet radio stations.

**2. ACT importation and promotion.** This strategy was used by Ivan Pivac, who operated out of Zabonne in Auckland. This company began in the late 1980s to source and import Dolphin products as an alternative to those offered by Wormald (Pulse Data International). This company seems to have offered fair competition to that monopoly provider as it also offered more personal training and customer follow-up. As Bob remembered:

It was not only a great deal more useful than the silly little KeyNote, but Ivan was far better to deal with than Wormald. He gave them the personal treatment. He came down to Palmerston North, set me up with Hal, showed me how to work it, and was always there at the end of the phone to talk me through problems (#3, 15 January 2001).

**3. Use of existing structures.** People like Clive Lansink and Vic Sinclair promoted ACT through their positions in the RNZFB. Clive Lansink, as IT manager for the Foundation, developed in-house software enabling visually impaired and blind workers to access and use databases, promoted the use of email lists and made the crucial decision to push the organisation (and by extension blind New Zealanders) into the Windows environment. Vic Sinclair, as national vocational advisor, helped to develop an ACT training course with the Auckland University of Technology.<sup>16</sup> This course trained 180 blind and visually impaired adults in using ACT.

Arguably these two were working out of the RNZFB and therefore cannot be seen as individually worthy of credit. Nevertheless, their activities were undertaken against the

backdrop of an inert, relatively passive organisation that had not yet begun officially to actively harness ACT's potential (see section 4.4, p.96). Their efforts were remarkable as it was not until 2001, after this study had been completed, that the RNZFB officially adopted a policy on ACT and established a unit dedicated to its usage.

The second subset of key individuals were those sighted people, from a variety of backgrounds, who sought to both develop and advance specialised technology use among visually impaired and blind New Zealanders. They became involved in similar strategies to those mentioned above, but they were also involved in a fourth, ACT creation.

**4. ACT creation.** This involved spontaneous attempts to develop specialised technology for visually impaired and blind people. This strategy was adopted both formally, by some individuals well known in the blind community (such as Russell Smith who formed Wormald, then Pulse Data International) and informally by others like the Wilsons, described below, who were never formalised into companies.

Since we discussed formal initiatives above, we will look at the Wilsons' story, as reported by one of our participants, Bob:

I heard about a thing called, I believe, a "speech box", called Apollo, from a couple in Wellington called the Wilsons. Alison was blind, and her technician husband was interested in devising a way to make computers talk for her. Mr. Wilson actually bought an old mainframe computer from TVNZ,<sup>17</sup> set it up in his garage like a colony of giant squids - cables everywhere - and tried to find ways to make it talk. I went to visit them and we went into this garage and there was one huge console with great big thick wires and they went off to the different keyboards and boxes and things like that. It was the old-fashioned computer. He hadn't figured out how to make it talk, but they had come across a little magic box [the Apollo] that you plugged into a computer. I went along to the computer people at [name of workplace organisation] and said look, this thing talks.

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<sup>16</sup> Auckland University of Technology is the current name of the Auckland Institute of Technology, the organisation with which the RNZFB had organised its previous courses in the 1980s.

<sup>17</sup> Television New Zealand.

Now can you organise so that it talks to me? One of their engineers actually wrote a programme that converted speech into print. So that's where I began, with the K-Pro (#4, 15 January 2001).

This story highlights the essence of an alternative development approach. It shows the role played by individual people, who operate at the very micro level where development occurs. This idea will be further illustrated as we now look at the roles of the second group of individuals - those visually impaired and blind ACT users who sought to train themselves in the absence of organised training.

Through the 1980s and the 1990s blind and visually impaired New Zealanders found a range of strategies to provide themselves with necessary ACT training. These strategies were either used individually or were combined. They included self-training, reference to close family and associates and peer consultation.

The first occurred in consultation with other visually impaired and blind people as well as with the use of training manuals, which were often sold with a particular product. The second involved obtaining the assistance of willing family members to help them acquire these skills. The third was done on a one-to-one basis or in a semi-structured group setting (such as the ATIG, section 4.4.2, p.99).

This section has demonstrated the undeniable importance of the role of the individual in empowerment, whether this means the individual designers and entrepreneurs who harnessed digital technology in the cause of the blind, or the visually impaired and blind individuals who discovered what they had invented and availed themselves of it. Their significance is important to note, as the remainder of the thesis focuses on the personal experiences of individuals in relation to ACT's use and benefits. The next section concludes this chapter.

## **4.8 Summary and Conclusion**

This section summarises our journey so far. Having decided in Chapter 1 to explore how ACT was affecting empowerment for visually impaired and blind New Zealanders, we set out to look at the various roles of important stakeholders in Chapters 2 and 3. In those chapters we considered each of the major actors' response to empowering visually

impaired people in the context of the dramatic changes being brought about by ACT. This current chapter has served two functions. First, it located the general philosophical and global arguments from the preceding chapters in a local New Zealand context. Second, it aimed to outline some of the background issues against which the various stories told in the remainder of the thesis are set.

The main lesson learnt so far is that mainstream approaches involving state-led strategies and established NGO initiatives were not particularly effective by themselves in helping visually impaired and blind New Zealanders to harness ACT. While the state provided critical financial resources, the philosophies driving its actions during this time did not result in proactive strategies to promote ACT usage on a wide scale. It was necessarily distant and reactive (through its established structures) rather than proactive.

For its part, the monopoly welfare-providing NGO (the RNZFB) was also mainly reactive, rather than proactive. While some initial efforts were made, these came from enterprising individuals rather than from a proactive, established policy-based approach by the organisation. Eventually however it caught up with changes in ACT and has sought to make amends for its past failings. The results of these efforts are yet to be seen and are outside the scope of this study. However, the current socio-economic situation of visually impaired and blind New Zealanders (see Appendix 4) suggests that these big institutions' failures may have retarded their capacity to maximise ACT's empowering potential.

The other lesson we have learnt is that ground-up approaches, such as those promoted by adherents of radical alternative development, do not necessarily bring about all the desired results either. For example, the self-help organisation, the ABC, was itself largely reactive rather than proactive. Also, when it did attempt to address the information needs of visually impaired and blind members, it could not sustain this effort for lack of resources.

Another even more novel lesson we have learnt is the key role of the business sector as an agent of development and empowerment. In this context the private sector means those companies that combined philanthropy with the profit motive, resulting in some advantages for visually impaired and blind ACT users. They were particularly useful in

developing both technologies that interfaced with mainstream, macro technological changes and those that facilitated processes (such as information access) often made difficult by blindness or severely limited vision. This was extremely important because the situation at the time did not allow any other group to successfully manage this kind of development.

These technology development efforts by the private sector were also matched, to some extent, by the attempts of visually impaired and blind individuals to harness the benefits of the technological changes taking place. This presented a striking lesson for us. Against the backdrop of phenomenal changes in ACT, a remote state, somewhat unresponsive NGO and self-help organisations, and a sympathetic (but nevertheless commercially oriented) private sector, individuals sought to capture ACT's benefits for themselves.

This is an important point because it is their own experiences with which we are chiefly concerned in this study. We are interested in how, at the very micro levels, larger processes of development such as ACT-related transformation impact the lives of intended and unintended groups of people. The remainder of this thesis is dedicated to the experiences of our study participants.

This brings us to the end of the stage-setting part of the thesis. We now move into the next part, where the individual study participants take centre stage as they start to tell their stories. We begin this part of the thesis in Chapter 5 by first describing the process of data gathering.

# **CHAPTER 5: RESEARCH METHODS AND PARTICIPANTS**

## **5.1 Introduction**

This chapter describes the research design and data gathering techniques employed, as well as the general demographic characteristics of the people who took part in this study.

Underpinned by the philosophy of empowerment and participation, the study targeted visually impaired people who were of working age and had come into some sort of contact with computer technology, as well as specialists (key informants), organisations, agencies and individuals whose activities impacted on this area, to assess the ways in which ACT has affected vocational empowerment for blind and visually impaired New Zealanders.

While the study was interview-based, aspects of both qualitative and quantitative strategies were implemented to provide a fuller understanding of the issues under consideration, as well as to provide a forum for identifying the issues, discussing and exploring the opinions and experiences of the key stakeholders involved. The chapter is divided into five major parts. It starts in section 5.2 by discussing the rationale for and details of the research strategies employed. To this end it looks at theoretical and practical issues that shaped the research design. Section 5.3 continues with a description of my field experience. Section 5.4 reports on post data collection activities. Section 5.5 provides a brief demographic description of research participants, while section 5.6 outlines the limitations of the study. We then conclude the chapter in section 5.7.

## **5.2 Imperatives for Participatory Research among People with Impairments**

This section focuses on theoretical as well as practical issues that shaped the research design. We look first at the philosophical concerns that impacted its design.

The imperatives for conducting participatory research among blind and visually impaired people in New Zealand emerged from my own ethical convictions as well as converging

demands by both development studies and social models for research to take into account the perspectives of the individuals with whom this research project would be mostly concerned.

From this study's perspective, ethical questions included both those arising from the actual methodology as well as those emerging from wider social issues involving impaired people. From the perspective of methodology, ethical issues have become as much a part of the research design as the methods of data collection to be employed. While the issues may vary in significance over the range of methods applied, they remain constant throughout the social sciences and present different issues according to the type of research being conducted.

As a consequence of the qualitative nature of this research, issues were raised regarding voluntary participation, questions of privacy and confidentiality and the possible effects of invasion and intrusion into others' lives. Voluntary participation was secured by requesting permission from people and organisations selected for participation in this study for them to be interviewed. This consisted of an information sheet (see Information Sheets in Appendices 5, 6, 7 and 8) which clearly outlined the purposes of the study, along with the rights and responsibilities of interviewees and the researcher. For instance, people were told that they could withdraw from the study, they were not obliged to answer any questions that made them uncomfortable and they had the right to view the study's results. Their agreement was then sought through signing the consent form attached.

Regarding issues of privacy and confidentiality, a range of measures were taken to ensure that the rights to privacy and confidentiality of both the people providing information and the researcher were not violated. These measures included written guidelines regarding the ways in which the information was used, assignment of false names for personal interview participants, use of numerical codes to protect the identity and privacy of survey participants, written permission from those (specialists) who were agreeable to being quoted or referenced, and anonymity options for people who were not (see Consent Forms in Appendices 5, 6, 7 and 8).

While harm to participants was not a significant issue in the study, the research design was particularly sensitive to wider issues affecting people with impairments and these considerations were structured into it. From the academic standpoint, other broader imperatives such as emerging philosophies have begun to impact the way in which development studies and general social science research is designed and implemented. Issues such as empowerment, research ownership and the participation of the people under study have now become prominent themes in conducting research. This aspect of research has become a dominant ethical issue in recent years, due to the agitation of feminist researchers and those in the Freirian tradition for research to be participatory and action-oriented (Marshall and Rossman 1995).

Participatory research models promote an ethos of power sharing in the research design and process and reject the rigid separation between researcher and participant. Instead, such models allow the participants to influence and direct the research project's form and content (Lunn 1998). Whereas traditional data gathering strategies see the professional dominating the process of conceptualisation, planning, implementation, data gathering and analysis of information, participatory methods change the role of the researcher to that of facilitator, learner and consultant. In this new role the researcher establishes rapport, convenes and enquires, to help in the use of methods and to encourage local and marginalised people to choose and improvise methods for themselves (Chambers 1997:130-1).

Prominent writers in development studies such as Chambers (1997), having identified traditional research as distant from local people's realities, dominated by the realities of professionals and reinforcing of existing power hierarchies, argued that more participatory approaches such as Participatory Rural Appraisal (PRA) present local people with opportunities to shape the processes and outcome of research. Such approaches ultimately aim to mitigate some of the development and research problems of the past through a commitment to empowering vulnerable and marginalised local people (Chambers 1997:162-3).

These methods are guided by principles of learning and participation. Together these mean reversal of learning in which researchers learn from the people, willingness to learn rapidly and progressively, avoidance of biases such as dominance by the more powerful,

optimising of trade-offs, triangulating between individual and group methods and between disciplines, and finally actively engaging with complexity and diversity, rather than merely reducing data to averages. Participatory approaches involve “handing over the stick”, or facilitating analysis, presentation and learning by the people themselves; self-critical awareness where the researcher continuously examines himself or herself; personal responsibility and sharing of information and resources. These methods also encourage trustworthiness and reserving judgments of behaviour (Chambers 1997:156-9).

These theoretical thrusts have also influenced disability research over the past two decades in relation to the treatment and role of people with impairment in research production. The demand for participation (mainly spurred on by the social model) has consolidated into an urgent need, as articulated by disability writers, for research processes involving people with impairments to become more participatory and empowering (Boyles 1994, 1995; Moore et al. 1998).

Among the various criteria for empowerment through the research process are acknowledgement and maintenance of the basic rights of impaired people in conducting research. These rights include access to the process of research, so that impaired people are involved in planning and carrying out research, dissemination of results, setting agendas, and the articulation and description of valued personal experiences. These rights also include those to confidentiality and ownership of data; to have their personal views respected and taken into account; to implementation of policy and practical changes to improve their lives; and to understand, challenge and reject research (Moore et al. 1998).

Some of these issues were of particular relevance to this research as they addressed my personal and professional concerns. From my personal perspective, as an individual with impairment I am concerned with issues relating to treatment of myself and other people with impairments by both researchers and society in general. From a professional perspective, I wanted to ensure that I would not transfer my perceptions of reality onto other people’s experiences (Chambers 1997). In this project, they were not so much clients or targets for empowerment strategies but were at least my equals and therefore were entitled to have a significant impact on the strategies and methods adopted (Heibert

and Swan 1999:362). To this end, as shown in the next section, I tried to develop a participatory design that maximised their involvement

### **5.2.1 Designing a Participatory Framework: The Role of the Focus Group**

This section describes how I involved participants in the design of data gathering strategies. In order to further define my research strategy and ensure that people participating in this study would assist in shaping the methods of data collection, it was suggested that I hold a focus group of people representing the target group's characteristics. Usually such groups assemble eight to ten respondents in the presence of a trained moderator who guides a discussion lasting about two hours (Greenbaum 1998).

This eventually ended up as a mini focus group held on January 27, 2001 in Palmerston North, largely organised by myself and one of my supervisors. This supervisor, himself visually impaired, proved a critical facilitator for this meeting. He made initial contact with potential participants on my behalf and eventually hosted the discussion at his home. After he had completed preliminary contact, I then followed up with an explanation of the group's purpose and a request for help from potential participants.

The people approached met the criteria of visual impairment and/or expertise in the areas concerning this research. Of the eight people approached only four participated. This, though disappointing, still enabled us to hold a mini focus group consisting of a five-person discussion lasting approximately 90 minutes, which I moderated (Greenbaum 1998).

Although not by design, all the participants shared fairly homogeneous characteristics. Apart from myself they were all male, had an average age of 45 years, had tertiary training and in three cases postgraduate research experience, were fairly competent with computer technology and possessed intimate knowledge of visual impairment issues both personally and professionally.

This focus group proved pivotal at this point for several reasons. Firstly, at this stage of the study I was fairly new to New Zealand and, though familiar with research methods, did not know enough about the country or the phenomenon under study. The group thus provided me with direct access to the language and concepts which New Zealanders with

visual impairments use to structure their experiences and to think and talk about the topic in which I was interested (Hughes and DuMont 1993). This was particularly important because I needed to represent participants' reality as accurately as possible (Oliver 1993:63, Chambers 1997). It also helped me to avoid problems with inaccuracy through failing to incorporate participants' views, wisdom, aspirations and imperfection (Edwards 1993:77). Though sharing similar impairment and work experiences with the focus group, I felt that, given my status as a cultural outsider, their input would be critical to achieve a reasonable level of ecological validity (Stewart and Shamdasani 1990).

Secondly, in accordance with this study's principles and objectives, the input of visually impaired people to assist in the drafting of strategies and instruments was critical to ensure effective and participatory strategies and sound and sensitive survey instruments (Goldman and McDonald 1987).

The focus group helped to provide and direct the strategies that were adopted in the study. The discussion surrounded ways of gaining access to other potential participants, methods of gathering data, instruments for data gathering, funding and advertising of the study, implementation procedures and the final triangulated three-part design which was eventually adopted. They were also particularly useful in assisting with refining and improving my survey instrument for the study's later stages. They critiqued my questions, developed some questions, suggested others, created relevant response categories to closed-ended questions, identified appropriate terminology in questions, highlighted problems and proposed other responses that I had not foreseen (Goldman and McDonald 1987).

Thirdly, this was a relatively simple, direct way of obtaining information from the people I had targeted (Hawe et al. 1990) and would prove economical for data collection costs. Their suggestions and comments guided the development and implementation of the data collection strategies described below.

### **5.2.2 The Logic of Mixing Methods**

This study's objectives and underlying philosophy - of empowerment and of participation by visually impaired people themselves in the research process and outcome - meant

adopting a less traditional, more pragmatic approach to the design and implementation of data gathering strategies. This section briefly discusses issues surrounding triangulation and our eventual mixed-method design.

Research designs in the social sciences traditionally fall into two main streams: the positivist and the phenomenological. This divide begins at the very earliest stage of attempts to understand social phenomena (Creswell 1994). Positivists are more comfortable with data gathering strategies emphasising approaches to the creation and reproduction of knowledge that are empirical, verifiable, cumulative and self-correcting, deterministic, ethically and ideologically neutral and statistically generalisable (Ellis 1994:13). Researchers are expected to adopt a rigid, systematic, objective framework which generally places them at some distance from the phenomenon under study. This approach uses methods such as surveys and experiments to gather data. A phenomenological approach generally prefers a more subjective, contextual perspective in which the researcher is permitted to come into close contact with the subjects of the phenomenon being studied (Stake 1995). This approach prefers case studies, interviews and focus groups.

Strict adherents of both sides of the traditional quantitative versus qualitative debate often argue that pure application of their respective research methodologies makes it impractical or impossible to combine both approaches at the theoretical level. However, my perusal of the literature showed that increasingly, social researchers have come to recognise that some social research problems do not lend themselves to thorough examination through rigid adherence to any one of the traditional designs, but are more appropriately studied using a design with mixed methods of data collection (Blaikie 2000:41).

The issue surrounding the choice of my research design had moved from discussing whether the methods emerging from the quantitative or the qualitative school were superior, to when and how to combine them (Foster 1997) for the most rigorous observation of the phenomenon under study. I chose to adopt a dominant / less dominant research design which was essentially qualitative in nature, but drew a small aspect from the quantitative paradigm to complement the overall data (Creswell 1994).

The qualitative emphasis was important in this study as it both allowed a level of flexibility and pragmatism that accommodated the suggestions and wishes of the participants, and enabled me to take advantage of the sources of information that were available. Pragmatism, from a development studies perspective, was valuable as it allowed me to bring to bear a multidisciplinary and holistic approach that maximised the advantage of triangulation. Authors such as Moris and Copestake (1993), in making a case for use of triangulated qualitative research techniques in rural development research projects point to their flexibility, greater internal validity and cost-effectiveness as key advantages.

The inherent pragmatism of qualitative data gathering research techniques allowed me to draw upon multiple varying data sources, enabled me to access credible data from expert sources (specialists, or key informants) and permitted me to adjust the data gathering strategy to accommodate evolving issues and concerns over the research's course.

Upon the recommendation of the Palmerston North focus group I adopted a strategy of between-method triangulation to obtain the advantages of each method and to overcome the unique deficiency of each data collection method employed in this study (Denzin 1989). Mixing occurred at the data collection stage which used multiple strategies such as survey, focus group and in-depth interviews to collect data. I also employed another type of mixing at the data collection stage through combining instruments and mode of administration.

The three-part methodology, commencing with interviews, was broadened with a focus group discussion which assisted in the survey questionnaire's preparation as well as determining the strategies that were later utilised. This was followed by a second part in which the survey and interviews were carried out with blind and visually impaired computer users and interviews with agencies and specialists were undertaken concurrently. The third part concluded with a series of strategies for disseminating findings to participants.

The next section outlines sampling procedures and contact strategies.

### **5.2.3 Defining Sampling Issues and Making Contact: Maximising Participation**

This section relates how the sample emerged and the ways in which I made contact with study participants. Because of my qualitative design, sampling methods were essentially non-random for interview and survey participants. After discussion in the Palmerston North focus group, it was agreed that in view of the objectives of the study, the lack of funding and personnel, the time constraints, my unfamiliarity with New Zealand and the significant logistics involved in conducting a nationwide random sampling survey, qualitative sampling techniques would be more useful and attainable. This decision was also supported by the fact that I had difficulty establishing the size of the population and defining a sampling frame for the survey.<sup>18</sup>

Questions were raised by both the focus group and the literature concerning the statistical usefulness of a non-random sample survey, as this would not produce representative, generalisable results. However, non-random sample surveys can be useful under restricted circumstances, where the study is exploratory and little is known about the study population. The circumstances of this study warranted a purposive sampling design as it attempted to break ground into a relatively unexplored area. Further, relatively few people in the blind and visually impaired population met the criteria for participation. In addition, this study was exploratory in nature and sought to provide a basis for future research (Chadwick et al. 1984, Babbie 1992).

My efforts to attract participants consisted of a series of strategies designed to maximise response to this study as well as to provide an opportunity for participants themselves to take part in directing the course of the research methodology. These involved official notification of the RNZFB, participant-initiated contact, and researcher-initiated contact. The RNZFB offered help by facilitating advertisements over its extensive nationwide networks. It also directed me to a source of funding for the research.

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<sup>18</sup> My original intentions involved a random sample survey of blind and visually impaired people of working age who had come into some sort of contact with computer technology. To this end, I sought to develop a sampling frame from which to draw my subset. I contacted the RNZFB in June 2000, requesting demographic information such as severity of impairments, numbers of clients, geographical distribution, age and gender, which would have assisted in designing a random sampling procedure. I made varied requests over a period of three months and eventually was told that their database was incomplete and that they were unable to provide the information requested. While they did provide some information this was insufficient to design a sampling frame.

In the focus group we discussed various possibilities for contacting blind and visually impaired people for the study. It was pointed out that in New Zealand these people had been “over-researched” and that direct means of contact would not elicit much support from this community. Instead, the means of eliciting participation should emphasise the voluntary nature of participation and this information should be presented in a format that the individual could access easily. This effectively ruled out means such as direct letters to participants, unsolicited approaches by myself or others acting on my behalf and general advertisements in newspapers or over the radio. I therefore had to resort to specialised channels through the RNZFB and the ABC networks.

It was agreed that the most effective way of finding participants would be through the RNZFB’s advertising mechanisms. These included various email listings (visually impaired or VI listings), their telephone information service (TIS) and their quarterly news magazine, Outlook. The first medium, the VI listings, allowed me to contact people with access to computer technology and email services through general announcements presented in electronic format. The second means, TIS, allowed people telephoning in to the RNZFB to find out about the study. The third, the magazine, enabled people who read print to access information at their leisure, in a comfortable format. The first two were particularly useful for those people who could not access print independently, while the last suited those who were still able to access printed materials. All three resulted in nationwide coverage and included those who may have met the participation criteria but did not have access to computer technology.

This strategy was supplemented by the snowballing method. Participants made initial contact with other people on my behalf. Wherever possible, a third strategy, personal visits to locations, was employed. Three main sites were identified, Auckland, Wellington and Christchurch. These are the main centres in New Zealand and provided the greatest possibility of physical contact with my target population.

Actual contact was made in the following ways:

**1. Participant-initiated contact.** In the majority of instances people answered my general advertisements for participants and used mainly email, letters and the telephone to contact me to signal their interest. I then followed up with an information sheet and

consent form. They signed and returned these in self-addressed envelopes I provided, or returned emails stating their interest. I then followed up with requests for suggested interview dates and asked their preference as to face-to-face or telephone interviews and whether they wanted to participate in an interview, survey, or both.

**2. *Researcher-initiated contact.*** Where people, particularly specialists, were recommended by other participants, I contacted them by telephone or email. In these first encounters, I explained the study I was doing and then asked if they were interested. If they agreed, I sent them the consent form and information sheet via email or letter. After securing their consent, I arranged dates for interviews.

**3. *Participant-to-participant contact.*** The third strategy involved reliance on other participants to make contact on my behalf. For example, this was particularly relevant in the Palmerston North focus group’s case. The participant-to-participant strategy had several advantages, which increased its appeal. For example, a well-known participant from the focus group posted my initial advertisement over the RNZFB’s VI listings. Firstly, because the advertisement was not an official RNZFB announcement, it was clear to participants that this study had not originated from the RNZFB and was aimed at obtaining their views independently. Secondly, his endorsement lent some legitimacy to my study, as I was an outsider and unknown to potential participants, which encouraged people to respond.

The sampling and contact strategies yielded the following results (shown in Table 1 below). Most people with whom contact was made elected to participate. Four people did not wish to participate in the focus group and five people either refused or failed to participate in the survey. Refusal means outright decline after being introduced to me, while no reply means that after initially signalling interest, participants did not follow through with consent.

**Table 1: Sample Results for Main Data Collection Strategies**

<b>Response Type</b>	<b>Survey</b>	<b>Personal Interview</b>	<b>Specialist Interview</b>	<b>Focus Group</b>
Participated	86	49	19	4
Refusals	2	0	0	4
No Reply	3	0	0	0
Subtotal	91	49	19	8

Having discussed our contact strategies, in the following section we consider issues relating to administering the various instruments.

#### **5.2.4 Instruments and Mode of Administration: Facilitating Participation**

This section describes how I attempted to maximise participants' involvement in the choice of instruments and modes of administration. As with the contact strategy, these had to be structured and applied in a way that did not prove disempowering to the blind and visually impaired. They generally reflected a dynamic, flexible approach in keeping with my desire to encourage maximum participation from research participants. This is especially true for the mode of administration.

People participated in the ad hoc survey and/or in-depth interviews as shown in Table 2 (p.129). Interviews were administered either face-to-face or by telephone. Both modes were important as they lessened the response burden on blind and visually impaired respondents since questions were read by the interviewer. It was also helpful to appropriate the benefits of face-to-face interviews because of their accuracy and high rates of return. Telephone interviews enabled me to gather data from all over New Zealand fairly cheaply and reduced the costs involved in travel (Babbie 1992).

The survey was characterised by purposive procedures, and the administration of standardised questionnaires to each respondent. This was done through face-to-face meetings or telephone interviews and included participants from all over New Zealand. The questionnaires consisted mainly of closed-ended questions attempting to gather information on variables such as age, gender, employment and economic status, access to and types of computer technology, types of occupation and tasks involved, job acquisition, work experience, technology use and training.

The survey represented a combination of original and borrowed questions. Questions regarding technology needs were obtained from *Disability Counts*, the 1996 New Zealand household survey of disabilities (Statistics New Zealand 1998), while questions relating to use were taken from Allan Roulstone's dissertation on new technology and work for people with disabilities (Roulstone 1994). Other questions relating to the impact of technology were obtained from Tighe's (1994) study of disabled people in

Canada. This instrument, when administered alone, lasted for approximately one hour (see Appendix 9).

The non-random survey offered the important benefit of statistically analysable findings that complemented the qualitative techniques used in the study (Seiber 1994). This was important as the survey was used for its ability to gather general information quickly and efficiently. It was particularly useful for gathering descriptive information about the characteristics of the visually impaired population and enabled me to identify any trends in the way computer technology affected key variables such as employment status and occupation type, as well as to allow for comparison and generalisations about important variables in the study.

Equally importantly, the survey afforded participants the option of deciding the extent of their participation in the research project and formed a critical part of the earliest stage of the data gathering process.

In-depth interviews were of two types, personal and specialist. Personal interviews consisted of one-to-one encounters in which individuals provided information about their own histories and recounted their experiences. An interview schedule comprising open-ended questions relating to employment, training and technology use was used (see Appendix 10). The order and types of questions differed slightly depending on the direction individual interviews took. Averaging one and a half hours, they varied in length depending on whether they were combined with the survey. As with surveys, they were administered face-to-face or by telephone (see Appendix 11 for a complete list of participants).

Specialist interviews were also conducted with key people in organisations involved in acquiring and distributing computer technology to blind and visually impaired people. These organisations included the RNZFB, Pulse Data, Zabonne, Workbridge and the ABC. Others such as Out of Sight and educational institutions involved in satellite services such as training and job placement were also interviewed (see Appendix 12 for complete list).

In some cases there was some overlap between personal and specialist interviews. In these instances, the interviews were treated separately and the individual was required to

complete consent forms for both interviews. There were no set schedules for specialist interviews because in each case questions related to the particular areas of expertise on which the interviewee was commenting. Interviews lasted about one hour. Again, they were done either by telephone or, in the majority of cases, face-to-face.

Interviews were valuable for their open and flexible structure which allowed me greater latitude in phrasing and rephrasing questions, while leaving participants the same degree of latitude and flexibility in their responses (Goldman and McDonald 1987:10). Additionally they provided useful information for identifying and understanding the various effects of computer technology on work patterns. They also allowed gathering of specific detailed information (Chadwick et al. 1984).

A further strategy saw the use of an unconventional approach in which I administered the survey and interview instruments simultaneously. This idea came out of the Palmerston North focus group. The group believed that many blind and visually impaired New Zealanders did not read enough owing to difficulties experienced in accessing information. Posted, self-administered surveys would thus discourage participants and lead to lower return rates. Likewise, surveys converted to more comfortable format, such as braille, would become more bulky and expensive than the printed page. This combined approach would therefore reduce both the inconvenience experienced by potential respondents and the study's overall costs.

This method consisted of combining the traditional survey and interviewing techniques into one. I presented individual respondents with a series of questions which they answered in their own words. I then listened closely to the responses and filled in the responses on the survey form as they talked. Where none of the open-ended responses matched the closed-ended responses, the "other" category was selected. This meant that most questions had to include "other" among the response categories.

This strategy used the survey form in conjunction with the open-ended interview schedule that was already being used in the study. Both were essentially similar in nature and therefore presented no difficulties in administration. I also taped the interviews for double-checking of answers.

This combination of free-style and survey interview provided advantages from both methods. From the perspective of quantitative surveys, it firstly allowed for clarification. Secondly, it permitted data to be collected in a format that was codable and easily managed. Thirdly, it meant each respondent was exposed to the same set of questions, in roughly the same order. Fourthly, it provided me with the ability to handle a large number of interviews in a relatively efficient fashion.

From the point of view of qualitative approaches, this method allowed respondents to provide responses voluntarily without interviewer influence through the power of suggestion. It allowed double-checking of information as the interviews were tape-recorded and permission was asked to revisit respondents if any issue was not clear to the interviewer. It also more accurately represented respondents' realities. Finally, it facilitated more detailed interviews than would have been possible with standard closed-category responses and so enabled me to gather significant amount of data in a rather quick and efficient manner.

**Table 2: Overlaps in Participation among Data Collection Methods**

<b>Method Type</b>	<b>Number</b>
Surveys only	39
Personal interviews only	0
Specialist interviews only	10
Focus group only	4
Surveys and personal interviews	39
Surveys and specialist interviews	3
Surveys, personal and specialist interviews	5
Focus group and personal interviews	3
Personal and specialist interviews	1
Total people contacted	113
Total people participating	104

So far, we have been dealing with some of the practical and theoretical concerns that moulded the research design and data gathering strategies and how these were applied in the field. We now turn to look at some of my actual field experience.

### **5.3 Doing Research: Out in the Field**

This section relates my actual field experience and records my various impressions of my visits. It then follows on with information about my field aids and discusses my role as a researcher.

The data collection phase commenced on January 15 with personal interviews. However, on the recommendation of the Palmerston North focus group, I launched the wider data collection aspect of the study with a visit to Auckland from February 11-17, 2001. Auckland represented the largest concentration of blind and visually impaired people in New Zealand and is the home of the RNZFB's headquarters.

During this time I stayed with one participant's parents. Consequently, I incurred no personal costs except for transportation. They provided food and accommodation, some transportation and entertainment during that week. This strategy had been suggested by the focus group and was utilised throughout the study. During my subsequent visits to other parts of New Zealand, I stayed in the homes of participants. This afforded the double advantage of reducing research costs and enabling me to meet these individuals. I found the latter most rewarding and exciting.

By the time I came to Auckland, my advertising (through the help of a focus group member) had already started over the RNZFB's VI listings. I had already arranged 18 meetings with potential participants. On my first day, I successfully completed one interview. However, that participant suggested other people, who later participated in the study. I was also able to meet with key personnel at the RNZFB who helped me to advertise the study in their other publications and over their TIS. I also conducted some interviews with specialists.

Altogether this trip was very successful. I conducted over 25 interviews, both with blind and visually impaired individuals and with specialists. However, I did not find it personally fulfilling as the days were crammed and despite my initial attempts at making contact with senior RNZFB staff I did not get a very welcoming reception from the RNZFB's Auckland office. I found the offices there initially unfriendly and intimidating to people with visual impairments. For instance, I spent many hours sitting in the building's foyer because I had no other centrally-located area to go to in between

interviews. I was not offered office facilities until eventually a fairly junior staff member helped me to book a room for interviews. I was not very happy with my treatment as an RNZFB member, nor as a researcher.

I then returned to Palmerston North where I continued my data collection both within that city and in other far-flung areas of New Zealand. In Palmerston North I conducted face-to-face interviews and for more distant locations such as Invercargill, Hamilton or New Plymouth, I utilised telephone interviews. This strategy was repeated throughout the six-month period of my data collection. I visited various cities and towns and each time returned to Palmerston North where I conducted more interviews.

In between visits I repeated my advertisements for participants. My study was advertised in the RNZFB's March 2001 Outlook magazine. It also ran from March 2001 over their TIS. I repeated my series of email advertisements two more times and the final call for participants went out on May 27, 2001. The TIS advertisements ran until June 2001. These repeated advertisements were the main ways of attracting participants, and determined where I would visit next.

In order to limit research costs I grouped participants from particular areas. For example I visited an area if I had at least ten participants. Grouping participants proved particularly advantageous in two ways. Firstly it helped me to maximise the returns for the expense involved in travelling. Secondly, it helped to minimise the costs of telephone interviews, which had proven higher than anticipated. This was because the interviews had to be conducted at participants' convenience, in many instances involving peak telephone rates.

My next visit involved a nine-day stay in Christchurch from April 17-26, 2001. As with the Auckland trip, I accepted an offer of free accommodation. This time I stayed in the home of a research participant. I was given food and accommodation, but bore my own transportation costs.

This time I prearranged a contact with the RNZFB before leaving. The Auckland office had suggested this person. This strategy proved to be advantageous in three ways. Firstly, the individual provided office space at the RNZFB. This enabled me to access many locations, as the offices were reasonably centrally located. I also had access to

telephones and other facilities which were very helpful. Secondly, it was useful in terms of my methodology, as this individual made contact with seven people on my behalf. Helpfully, these were largely unemployed people who did not have access to the RNZFB's email listing. Thirdly, the fact that I was formally introduced to the RNZFB's office staff lent some credibility to my study. I did not experience the sense of disorientation and awkwardness that I felt on the Auckland trip.

Altogether, the Christchurch trip, though less hectic than that to Auckland, was still very successful. I completed eleven survey forms and nine interviews, including three with specialists. I also took advantage of an opportunity to attend and observe the ABC's Christchurch chapter. I saw how blind people got together to advocate on issues affecting their life. This also allowed me to witness the internal workings of an ABC branch and to see how computer technology affected these people in a meeting setting. I also found the ABC environment much more welcoming and conducive to conducting research.

My final visit took me to Wellington, from June 17-22, 2001. This time I stayed with a friend, who provided daily transportation into the city as well as food and accommodation. As with the Christchurch visit, I made contact with an influential staff member before I left Palmerston North. This resulted in my being well hosted at the RNZFB's offices, which became my operations base during my stay. Again, these were centrally located and reduced transportation costs to the various homes and institutions which I visited. I also took the opportunity to visit the ABC's head office.

This time I also prearranged all of my meetings. These consisted of six interviews, five with specialists, and seven survey questionnaires. Specialists were suggested by their organisations or by other participants. By the time I completed this trip, responses to my advertisements had begun to dwindle noticeably. I returned to Palmerston North where I conducted my final three interviews, the last of which took place on July 5, 2001. I officially closed the data gathering period of the study on July 15, 2001.

### **5.3.1 Field Aids**

This section discusses some of the various devices and aids that were useful in my field research. Throughout my data gathering I found three types of aids very useful. Tape

recorders were used to tape all interviews. This was especially important for open-ended interviews and for the combined survey-interviews. Recording was followed by transcription and double-checking of responses for the survey-interview combination.

In addition, the tape recorder was invaluable for the focus group. I used it instead of a video camera, which I did not have the skills to use, or resources to obtain. Also, at the outset of the research participants expressed discomfort with the use of video cameras. To maximise their comfort I used tape recorders only.

Two types of microphone were helpful throughout. The first was an extended external microphone that helped to increase voice clarity and reduce background noise. I was particularly grateful for this piece of equipment as I had very little control over the environments in which interviews were conducted. For example, I visited educational institutions where our interview room was surrounded by classrooms and children at play. This microphone proved particularly useful in those circumstances.

The second type, a telephone induction microphone, was used during my telephone interviews. With participants' permission, this microphone allowed me to record the interviews and offered a fair level of clarity.

A research log served much the same function as a journal. I summarised the main points of my interviews or my day's activities in a file on my computer. This file recorded all my impressions, anxieties and any flashes of insight that I had during the day. When I was away from home I summarised my impressions on a tape recorder, which I then transcribed into this log at home.

The next section explains how I myself occupied a unique position in relation to this study.

### **5.3.2 The Dual Role of the Researcher**

In this section I describe my peculiar role as a visually impaired foreigner doing research in New Zealand. As a researcher I occupied a particularly unique position in this project - that of an outsider and a genuine insider, simultaneously. This arose from my position as an outsider to New Zealand and from the fact that I myself shared the impairment and many of the experiences with which this study was concerned.

As a non-New Zealander, I had to adjust to a culture so drastically different from my own that sometimes I was extremely unsure of how to proceed. This difference was challenging to me personally, to my worldview and my ability to understand the issues in the context of a developed country and the particular social, cultural and economic realities that participants took for granted. As a consequence I had to abandon my own assumptions and give precedence to those of participants, allowing them to largely determine the shape and structure of the data gathering and the extent of data to be gathered.

For instance, blind New Zealanders generally have their guide dogs living inside their houses. From my cultural perspective, this was unusual. However, as I had to interview participants for whom these dogs were their main form of mobility aid and companionship, I had no choice but to abandon my cultural assumptions and learn to share my personal space with these dogs, to the extent of staying in homes where the dogs lived inside.

Another issue that arose was that of language and accent, both for participants and myself. For my part, I soon realised that if I brought up the matter of difference at the beginning of an interview, it was a good icebreaker and also made the interview flow more smoothly. I had to very quickly become accustomed to words like “tough biccy” “brass razoo”, “chuffed” and various others that New Zealanders used to describe their experiences. Depending on the situation I would ask the individual to explain what the word meant. Participants did the same with me. I also employed techniques such as slang avoidance, choosing value-free words, learning politically correct terminology, slowing down my talking speed and articulating clearly to avoid language problems interrupting the conversation. Overall language did not appear to have as great an impact on the study as I had thought it would.

My “foreigner” role may also have affected the level of response I had from participants. For example, most were willing to share very personal details, even to an extent that I had not anticipated. They often took on the role of instructor, which also reinforced my stance as a student coming to them for expert information. This pleased me as I was acutely conscious of Chambers’ (1997) diagnosis of education and research techniques as means of reinforcing and transferring the professional’s reality onto the people among

whom policy and research is being implemented. It had the advantage of also lessening the distance that traditional research often imposes on the subject and the researcher (Boyles 1995).

Overall, my status as a foreigner seemed to provide a point of interest for participants and at the same time put them at ease. Owing to my “anonymity” and perceived independence from the establishment, participants seemed to be quickly reassured and put at ease. The conversation often began with some questions about myself or another issue of common interest at the time. This soon cleared the way for open conversation. This worked so well that in many cases I had to politely disengage from the conversation to make my next appointment. Additionally, because I was outside the culture I was not in a position to make judgments about any matter under discussion. I also had a chance to share what I believe are the genuine opinions of those participants who participated in the interviews.

My role as insider came about through my arrival in New Zealand as a visually impaired student and my exposure to the system for administration of disability services for locals (now including me). Owing to the extent of my impairment I was eligible to receive services from various governmental and non-governmental organisations catering for blind and visually impaired people, such as Equipment Management Services, the RNZFB and disability support services at Massey University. For example, I qualified for technology services and experienced the whole gamut of the process of assessment, funding, supply, delivery, support and maintenance of technology, and interacted with the system to which blind New Zealanders were exposed. This gave me first-hand experience of service delivery, bureaucratic structures and social responses that blind people faced in New Zealand.

This role influenced the study in some of the following ways. Firstly, it allowed me to identify to some extent with the experiences of the research participants. Where my outsider status would have precluded my understanding my experiences from a totally New Zealand perspective, my insider role allowed me to gain first-hand experience of the issues, as well as to develop empathy, knowledge and understanding of their experiences, which I could not otherwise have acquired. Secondly, it also helped me to understand participants’ experiences and interpret their stories in the context of the philosophical

underpinnings of this study, as I understood what they meant when they attempted to describe their experiences. Thirdly, it made tasks of introduction and commencing interviews very easy as it dispensed with concerns about peculiar issues germane to their impairments. Lastly, it also satisfied the criteria for research to be done by insiders, to represent the voice of people with disabilities and so avoid the problem of research being undertaken solely by non-impaired people, as identified by Oliver (1993:63) and would have lessened the traditional “exploitations” that social research among people with disabilities often entails (Oliver 1993, Oliver 1996a).

Overall, I believe that the two roles brought a good balance to the perspectives in this study. My outsider role precluded any cultural assumptions that I might have brought to bear on this research and forced me to remain objective when, because I shared the experience of impairment with participants, I might have been otherwise. For example, if a common experience was reported, I could genuinely sympathise with the participant, but my role as an outsider minimised the risk of my “going native”, as I had to remember that I did not understand the system’s internal workings. I managed this balance by speaking with agencies, which represented the establishment, as well as with the individuals themselves. At the same time my role as an insider allowed me some sudden insights in the middle of interviews, which I followed. As an outsider I might not have had these. These leads led me to explore issues which I believe made for a richer, more meaningful and more accurate presentation of the issues, concerns and experiences of these people.

Thus far I have been outlining the field aspect of my research. In the following section I move on to the post data collection phase of the study.

#### **5.4 Post Data Collection Activities: Maintaining Research Partnerships**

This section recounts some of the major activities undertaken after completion of my fieldwork. My post data collection strategies were carefully designed to continue and strengthen the partnerships that I had tried to forge throughout the study’s other stages. These strategies consisted of a series of activities which focused on presenting findings back to the community.

Built into the consent procedure was the assurance that each participant had the right to a copy of the findings. This was done through dissemination of the study results, upon completion, to each person who indicated a further interest, in their preferred format. These results were expected to provide the individual with an overall picture of the study's findings. For those who represented various agencies, these data would hopefully have provided needed information enabling them to make better decisions regarding the issues raised by this study. Other strategies for disseminating information to the wider blind and visually impaired population included a meeting with ABC members on March 21, 2002 in Wanganui. At this meeting I shared some of the study's results with approximately 100 blind and visually impaired people from Wanganui, Foxton and Napier.

Throughout the data gathering process tools such as interviews offered unique opportunities through their provision of some measure of interaction with the subjects. I sought to continue this interaction by maintaining contact with participants who wished this and disseminating a thank-you letter and progress report during the data coding stage. Through this interaction I sought to provide sources of information and answers to questions raised by some participants. For instance, in cases where people were unaware of speech technologies or placement agencies' services, I tried to disseminate this information as much as possible both during and after the data gathering phase.

Although this interaction did not directly influence the study's outcome, it proved personally rewarding as I developed many friendships with participants and made a small contribution to helping them to access information they had not had previously.

#### **5.4.1 Data Processing and Analysis**

This section describes how I analysed my data. My data processing involved transcription of interviews and coding of both interviews and open-ended survey questions. Transcription was completed by myself and paid transcribers, who were required to sign contracts governing treatment of data, preservation of confidentiality and format of data presentation, among other issues.

After converting the data to digital format, I conducted data analysis with the assistance of two programmes designed for quantitative and qualitative analysis. Data from the

survey were analysed using SPSS, a standard statistical package for quantitative analysis. In light of the study's nature this survey provided mainly descriptive statistics and is presented in tables throughout the thesis.

I employed a thematic analysis technique in which I used qualitative techniques for analysis of findings such as categorisation of variables, identification of issues and themes that emerged from the data. These themes and categories were obtained by reading through data and assigning labels and themes (Ezzy 2002:87). The qualitative analysis programme WinMax 98 Pro allowed me to apply a "cut-and-paste" method to the data. It also allowed me to synthesise and merge data from personal interviewees and specialists into an entire data set.

The findings were eventually constructed from the various themes and ideas found in the data. Both qualitative and quantitative data are presented jointly in the following chapters.

The next section introduces the research participants.

## **5.5 Demographic Profile of Participants**

This section briefly introduces the study participants and focuses especially on the units of analysis, or people with whom the study was concerned. Specialists were used as units of observation and mainly provided information about the blind and visually impaired participants who were the main units of analysis.

People who were eligible for participation had to meet requirements of being among the working-age population, being visually impaired and having come into contact with computer technology. A total of 49 people participated in the in-depth interviews, while a total of 86 people participated in the survey.

*Gender.* The study appeared to be relatively gender-balanced overall, although participation was split along gender lines, with males seeming to opt for participation in more involved, in-depth interviews and females opting for the less involved survey. Of the total 49 interviewees, 29 were male and 20 female. This contrasted with the survey,

where more females participated than males. Females accounted for 45 (52.3 percent) and males for 41 (47.7 percent) of the total 86 survey participants.

*Age.* Analysis of 35 interview and 86 survey participants' ages in Table 3 below indicates that most participants were middle-aged.

**Table 3: Age of Participants**

Age Group	Method Type			
	Survey		Interviews	
	Number	Percent	Number	Percent
16 - 25	26	30.2	12	34.3
36 - 55	48	55.8	19	54.3
56 -65	12	14.0	4	11.4
Total	86	100.0	35	100.0

*Ethnicity.* Regarding their ethnic backgrounds participants were mainly European, with minority groups such as Maori and some foreigners represented. However, other significant minorities such as Pacific Islanders, who are part of the New Zealand population, were not represented; see Table 4 below.

**Table 4: Ethnic Groups of Study Participants**

Ethnic Group	Method Type			
	Survey		Interviews	
	Number	Percent	Number	Percent
European descent	55	66.3	19	57.5
Maori descent	13	15.7	2	6.1
Other	15	18.1	12	36.4
Total	83	100.0	33	100.0

Of interest in this study is the category called "other" which applied to fairly large numbers in both the interviews and the survey. While ethnicity did not appear to be a big issue in the study, the "other" category for both in-depth interviews and survey comprised some people who were born outside New Zealand and had migrated here since birth and others who had been born in New Zealand and objected to questions about their ethnic origins. They chose to call themselves "New Zealander" and were thus placed in the "other" category.

**Impairment Status.** Participants in both the in-depth interview and the survey tended to be more severely visually impaired.

In order to explore the issue of severity I conducted a cluster analysis of devices used. This showed that there was a distinct clustering of devices used, according to severity of visual impairment (see Table 5 below). Those people who were severely impaired used assistive devices such as guide dogs or white canes for mobility and braille or readers for accessing information. People who were less severely impaired used glasses or contact lenses, magnifiers, closed-circuit televisions and large print reading materials.

**Table 5: Devices / Services by Extent of Impairment**

Devices / Services	Impairment Extent	
	Severe	Mild
White cane	34	14
Guide dog	32	6
Braille	29	3
Sighted intermediaries	27	6
Audio reading	26	15
Glasses / contact lenses	2	26
Magnifiers	3	26
Large print	2	24
CCTVs	7	17

From this I designed a severity variable with two parameters, “severe” and “mild.” This division showed that among the 86 study participants, 51 people (or 59.3 percent of the overall sample) could be considered severely visually impaired. The remaining 35 (40.7 percent) could be considered mildly visually impaired, based on the aids that they used.

It should be noted however that this distinction is relatively minor, as all the participants had relatively severe visual impairment. Those classified as mildly impaired had some sight enabling them to perform some tasks such as reading, whereas the severely impaired could be considered totally blind.

Interviews reflected a similar situation. Participants reported varying levels of sight or loss of sight. They were then classified into two groups on the basis of their responses as functionally either partially or totally blind. Of the 38 people who described the extent of

their sight or vision loss 19 were placed in the partially blind category (mildly impaired) and 22 in the totally blind category (severely impaired).

Of the 44 interview participants who identified the cause of their impairment, the majority (28) said they were congenitally blind. The remaining 16 reported that they had become blind through accidents. Most survey participants (72 or 83.7 percent) had no other form of impairment.

**Income.** Participants in both interviews and surveys appeared to earn fairly modest income overall (see Table 6), although a fair number of people reported middling to high income. This was surprising, but can possibly be explained by the access to blind invalids' benefits enjoyed by most participants.

**Table 6: Income Grouping of Participants**

Annual Income Range (NZ\$)	Method Type			
	Survey		Interviews	
	Number	Percent	Number	Percent
Up to \$15,000	28	32.6	6	15.8
\$15,001 - \$30,000	17	19.8	5	13.2
\$30,001 - \$45,000	18	21.0	10	26.3
\$45,001 or more	23	26.7	17	44.7
Total	86	100.0	38	100.0

An analysis of mean income showed that more severely blind people earned more on average than their more mildly impaired counterparts. A mean income analysis on the basis of severity of impairment showed a significant difference between the incomes of people in the severe and the mild categories. The mean income group for the former was \$30,000-\$35,000, while for the latter it was \$20,000-\$25,000, suggesting an average of \$10,000 difference between the two groups.

**Qualification Levels.** Overall, as Table 7 shows, it was apparent that people who participated in this study were relatively well educated. Furthermore, interviews revealed that those people who appeared less qualified were in fact in between qualifications. There also appeared to be no difference in education status between those who were severely visually impaired and those who were mildly impaired.

**Table 7: Highest Qualification Level**

Qualification (highest)	Method Type			
	Survey		Interviews	
	Number	Percent	Number	Percent
Pre-university (secondary)	17	19.8	11	22.4
Pre-university (tertiary)	41	47.7	15	30.6
First degree	9	10.5	10	20.4
Postgraduate	17	19.8	13	26.6
Other	2	2.3	-	-
Total	86	100.0	49	100.0

**Employment Situation.** Results from both samples suggested that the study participants appeared to be relatively well involved in some form of work or study programme. Of the 49 interviewees 34 indicated that they were in paid employment of some kind and 21 engaged in some kind of unpaid or voluntary work. This situation was also reflected in survey results. As Table 8 below indicates, a large majority (86.0 percent) of participants engaged in some sort of voluntary or paid work. Furthermore the largest group of blind and visually impaired people who worked were engaged in some kind of voluntary activities as well.

Participants who were not primarily working were engaged in alternate occupations such as education and training. Eight in-depth interviewees reported that their main daily activity was studying. Seven of these were full-time internal students at university and one was a part-time extramural student. All were either completing first degrees or pursuing higher degrees. Another five people said they were involved in single short-term courses. Three people, by contrast, were unemployed and remained at home.

**Table 8: Work Engagement Status for Survey Participants**

Work Status	People	Percent	Cumulative Percent
For pay, profit or income	31	36.0	36.0
Without pay, profit or income	7	8.1	44.2
Both	36	41.9	86.0
Don't work	12	14.0	100.0
Total	86	100.0	

Figures from the survey also showed that the majority of those not working were students. Of the twelve people who did not work at all, nine (75.0 percent) were

students. Two (16.7 percent) were occupied at home with home duties and one (8.3 percent) was unemployed.

The conclusion that blind people were relatively well occupied was also supported by the survey report regarding hours per week spent in both paid and voluntary work. From Table 9 it can be seen that 46 (68.7 percent) of those people who worked did so on a full-time basis. In contrast, the majority (30 or 69.8 percent) did less than 10 hours of voluntary work per week.

**Table 9: Hours of Paid and Voluntary Work for Survey Participants**

Hours	People		Percent	
	Paid	Voluntary	Paid	Voluntary
10 or less	6	30	9.0	69.8
Up to 20	10	6	14.9	14.0
Up to 30	5	3	7.5	7.0
Over 30	46	4	68.7	9.3
Total	67	43	100.0	100.0

The majority of people who specified the nature of their paid employment status (39 or 59.1 percent) were in permanent positions (see Table 10 below). No comparison was made with voluntary work as owing to its nature people retain control over the basis on which they participate and it was not felt that comparison would be useful.

**Table 10: Paid Job Status**

Job Status	People	Percent
Permanent	39	59.1
Temporary	5	7.6
Self-employed	13	19.7
Seasonal / casual	9	13.6
Total	66	100.0

Their demographic profile implied that study participants were better off than expected from the literature. Cross-tabulations or T-tests did not reveal any significant differences when the data were analysed by gender, ethnicity, impairment severity or age, implying that they were generally well off.

This peculiarity arose because the study's criteria for participation required people to have come into contact with ACT. These people happened to be those who were mainly working or in training, as it was later discovered that these situations were the criteria on which people could access computer technologies through funding sources.

These participants were also unique in relation to the ACT revolution; they were the first generation users of specialised technologies for the blind. Consequently, they also had unique information about how the change had affected them and about their role in bringing about changes.

Having completed this description of the study participants, we now identify some of the limitations of the research design.

## **5.6 Limitations of the Study**

This section highlights some of the study's limitations. Despite the usefulness of the modes of data collection employed in this study, they were also subject to a series of inherent weaknesses. Firstly, because of the eligibility criteria used for blind and visually impaired people to participate in the study, generalisations are restricted to that group of people only and not to the larger population of people with visual impairment, who may have had insightful and useful experiences, but did not fit the specific criteria laid down by the study.

Although mixed methods of data collection are extremely desirable for providing a thorough understanding of the phenomenon under study, they are subject to criticisms or weaknesses associated with the extent of mixing. For instance, my adoption and use of one dominant paradigm above the other will result in questions regarding the appropriateness of the combination of methods. Purists of either persuasion will question the mix of methods based on their own paradigmatic assumptions (Blaikie 2000). Mixing methods also adds complexity and runs the risk of linking paradigms that may be unacceptable and unfamiliar to many (Creswell 1994).

The simultaneous gathering of data by different methods led to overlapping and repetition. It also resulted in gaps in the exploration of some issues, since it did not allow

for follow-up of important leads and questions that arose, which a more phased approach would have permitted.

Other weaknesses connected to the methodology may limit the replicability and statistical generalisability of this study. For example, use of ad hoc surveys provided a picture of the situation at a particular point in time, but could not describe the process of changes which have occurred subsequently. The dynamic nature of technological change and the relationship of people to technology use and employment make this problem particularly noteworthy.

The qualitative techniques used were time-consuming and required long periods of time to allow sufficient data gathering and coding procedures to be fully completed. This problem came to light during data transcription and processing. Coding was a time-consuming and sometimes ambiguous task (Hughes and DuMont 1993).

Owing to the up-front and personal approach that these methods afforded they may have also risked reactivity in participants, who may have shaped their responses according to their perceptions of my desired responses. This could be heard in questions where they asked for my reassurance as to the correctness of their responses. I had to remain discreetly quiet and make reassuring comments to enable them to remain confident.

Further, these methods, because of their nature and my dual role, presented some challenges to my impartiality and I had to resist the temptation to become too personally involved so as not to jeopardise the study's initial objectives (Chadwick et al. 1984). For example I certainly empathised with the problems faced by these participants, and may have inadvertently let this empathy influence my phrasing of questions. While I was able for the most part to keep my own personal sentiments in check, I could not avoid being moved by participants' varied experiences and because of this close involvement, cannot be entirely sure that I had no effect on the interview process.

Finally, my dual role as researcher may present a challenge to future replicability as my position may have had some bearing on participants' willingness to participate, the extent of their participation and the type of responses they provided to issues and questions raised. For example, people with preconceived notions of my country of origin could

have emphasised benefits or understated problems to give a good impression of the situation in New Zealand, or the reverse.

Overall, however, I do not believe that this was a major problem as I probed and followed up issues during the interviews and used specialist interviews as well as my own limited experience for corroboration and double-checking. However, the uncertainty surrounding the above issues and my fairly unique position may make this study difficult for other researchers to replicate in future.

## **5.7 Summary and Conclusion**

This section concludes the chapter and offers general observations about my data gathering and research design. The methods employed in this study sought to create a fine balance between the rigorous demands of traditional social science research tools and those of an emerging request for more participatory, pragmatic, context-appropriate and efficient approaches to research. They sought to maximise healthy participation from the people involved rather than a rigid, inflexible adherence to tenets of traditional methodologies only. I thus took advantage of mixed methods increasingly being seen as attractive means of providing a robust source of data, as I considered that this mix would yield the maximum benefits in the particular circumstances of this study.

My eventual methodology comprised a non-random sample survey, interviews with both specialist and individual blind and visually impaired people and a focus group. The Palmerston North focus group especially provided me with the tools to enable some participants to shape the study's methods and design, as well as allowing for sharing of information. Similarly, interviews and surveys with blind and visually impaired individuals enabled exchange of information and the survey allowed general conclusions to be drawn about my study population. Specialist interviews provided explanations and expert commentary on the issues raised by various individuals throughout the study. These data are presented in the following chapters.

The triangulated and participant-dependent approach to contact and sampling allowed me to maximise interest in the study and resulted in extraordinary participation rates. The

flexible mode of administration and combination of data gathering instruments allowed participants themselves to negotiate the manner and extent of their participation.

While I enjoyed the project's data gathering aspects, the personal contact I had with participants also offered benefits in two areas. First, it offered me a particularly unique New Zealand experience that added a human touch to this research. Throughout the study, participants were extremely modest and appeared reticent to attribute successful harnessing of ACT to their personal involvement and actions, although as we saw in Chapter 4 they were the major architects of its successful adoption. They were a uniquely positioned set of people who provided rich insight into the ACT revolution and its effects on their vocational lives. Rather than emerging from a random sample they were a select group of key individuals who were active in ACT's implementation. They provided me with information that may be extremely difficult to obtain from a developed country context again.

Second, this personal contact offered benefits in the form of continuing relationships and friendships that enhanced my visit to New Zealand. Although in the final analysis I managed to enlist participants' cooperation, ownership and participation for the study, I also experienced other non-academic benefits such as friendships, increased understanding of disability issues and generally improved orientation to the local culture. Those benefits were extremely valuable because they made my research pleasurable and my stay in New Zealand interesting.

The remainder of the thesis relates participants' experiences as they move to take centre stage, beginning with the analysis of findings in the next three chapters.

# **CHAPTER 6: ACT AND FUNCTIONAL EMPOWERMENT**

## **6.1 Introduction**

In Chapter 1 we argued that any approach to empowerment for people with impairments must take into consideration the personal and unique realities of impairment and its effects on people's capacity to participate in development processes. This is because impairments generally negatively affect people's personal, social and economic situations and ultimately their capacity to participate and enjoy the benefits of development.

In Chapters 1 and 3 we noted that theoretical perspectives deriving from mainstream and medical model schools of thought generally optimistically regarded ACT as a means of enabling them to reverse negative economic circumstances deriving from their particular situations. Although the optimistic perspective was criticised for its susceptibility to technological quick fixes and potential endangerment of fundamental and enduring change, in the case of people with visual impairments it still retains some value as an analytical tool.

This chapter, steeped in that optimistic perspective, explores ACT's impact on visually impaired people's personal functioning. In interviews blind participants revealed that ACT positively affected three key areas or building blocks for personal empowerment. These were information management, social participation and their capacity to respond positively to external changes. The first, information management, was the single most important benefit of ACT as it helped them to function independently in areas such as information access and processing. This newfound independence subsequently contributed to flow-on benefits such as improved communication which led to increased social participation and improved capacity to respond positively to changes in their external environment.

These benefits at the personal, functional level were building blocks for others affecting other areas of participants' lives. This chapter outlines their perspectives as it mainly explores these compensatory effects of ACT on their capacity to function in a personal context. It is divided into three major themes: ACT and information management

(explored in section 6.2), the internet and its effects on social participation (described in section 6.3) and ACT and response capability (outlined in section 6.4). These results are discussed in section 6.5 where we also conclude the chapter.

In the next chapter, we continue with the optimistic aspect of our discussion as we explore visually impaired people's ability to maximise ACT to obtain vocational resources through various forms of work. We now commence this chapter's discussion with the following description of ACT and information management.

## **6.2 ACT, Independence and Information Management**

As noted above, ACT has enhanced its users' information management capacity. The term information management as we use it in this chapter is borrowed from business, computer and library studies. It generally refers to management of the phases of the information cycle such as input, processing, storage and output (Hutchinson and Sawyer 1996:377).

In its more discipline-specific sense it relates to application of management principles to the acquisition, organisation, control, dissemination and use of information relevant to organisations' effective operations. When "information" is used in this context it speaks of all types of information of value, whether they originate inside or outside the organisation. Thus, information management deals with the value, quality, ownership, use and security of information in the context of organisational performance (Wilson 2002).

In this chapter it has a similar meaning, but this applies in an individual context. Thus, it does not imply application of management principles in an organisational sense, but individuals' capacity to manage information in terms of accessing, processing and transmitting it. It also encompasses use and deployment of information that becomes available to those individuals.

As we shall see from this chapter and the next, the ability to manage information independently has been a key benefit of using ACT, according to 38 participants. Independent information management contributed to users' personal empowerment in two ways. First, it negated the limiting effects of impairment on their ability to function.

Second, it produced other benefits which enabled them to exercise control over their personal affairs and social interaction. Together these sets of benefits compensated for the limitations caused by their impairment.

The following section addresses access to information.

### **6.2.1 ACT and Access to Information**

As we have already indicated above, ACT was a critical facilitator of information access among study participants. For 20 people access to personal information was the main benefit of using computer technology. For 17 participants work-related information access was afforded by computer technology. Twelve people reported that both personal and work-related information was facilitated by this technology.

This section reports on the way in which ACT has assisted blind and visually impaired people to access information. In this context information access covers three distinct functions: obtaining access to outside information, obtaining access to the computer's insides (for example reading screens) and making material accessible to other people. Before reporting its effects, we will describe how participants coped prior to using ACT, so that we can understand why it was so important to them.

Traditionally, blind and visually impaired people had problems accessing information because they could not read it in the various formats in which it was presented. This problem resulted in others, which hindered their ability to carry out normal information-intensive activities such as reading or accessing information. For instance, in the case of work that was dependent on access to information, difficulties such as reading a book or an article, caused by the impairment itself, were often compounded by difficulties in accessing the book or article in the first place. Together these affected the individual's performance of duties or tasks, as Bob, a lecturer, explained:

The greatest bugbear of a blind person is not being able to read books. Now that's particularly important in our line of work where you've just got to read and read and read. I evoked before, how I had a team of volunteers and how slow and tedious it was getting books read. When a book is out loud you can't figure out the spelling of any proper name, so it was a very slow process and I was just endlessly frustrated about not being able to get

enough raw material into my mind to process. I've got a reasonably good mind but it was just running on one cylinder instead of all eight cylinders (#5, 15 January 2001).

Inability to access information also spawned other major problems in crucial areas such as communication, especially in written forms (Newbold 1987). While braille facilitated communication among blind people it could not do the same between them and the sighted. Use of old analogue technologies such as typewriters partially resolved this problem by allowing visually impaired people to present information in print.

However, print usage increased their disadvantages in information access. For example, they could not review work and correct mistakes. Accessing information in print also increased their dependence on other people because they had to engage the services of a human intermediary to read information back to them, or to convert it into braille or other accessible formats.

This input by intermediaries, while partially helpful, also exacerbated their problems as they were left at the mercy of other people. This dependence led to a variety of disadvantages and inconveniences such as lack of control over their work production process and the pace and quality of work, lack of direct access to information, vulnerability to the weaknesses and idiosyncrasies of the intermediary, increased stress and frustration in the production of work and lowering of productivity rates.

These problems can best be seen in the case presented by Bob, who recounts his experiences with volunteer readers while he worked without ACT:

In my particular job, every aspect of it was extraordinarily difficult. Part one was to give lectures. I composed my lectures on tape, but I don't speak out loud very well, and to try and say, organise a 50-minute lecture, on tape - that in itself is a difficult job, just to get the lecture the right length, listening to it on tape and delivering it without notes, that was difficult. Marking essays, I had to get them all read to me. My father did a lot of reading and then I'd pay others to do it. When I typed comments on essays ... I was a touch typist, but I couldn't read my own typing, so the feedback that I gave the students was probably full of typing mistakes and things like

that, and then I couldn't correct it, I couldn't revise it. I couldn't get access to it. Of course, I couldn't read any books I wanted, I had to get a volunteer reader to read it, and that was extraordinarily long and I also had to be careful what book I gave to what reader. I had one person reading to me, but I didn't realise that she was a fundamentalist Christian and I gave her a book that was written by a Marxist and it was about Cabalism. And she said it was the work of the devil and she picked it up with a pair of tongs and she dropped it into the fire ... Every aspect of life was difficult. I wasn't performing to the optimum (#6, 15 January 2001).

Vulnerability in turn affected visually impaired people's output quality, as a consequence of the sheer effort and difficulties involved in accessing information through other people.

For instance, some participants reported that they were forced to contend with typing and editorial errors overlooked by sighted intermediaries. In Carla's case, while she exercised control over her work content as a university student, she could not exercise control over her work presentation prior to using ACT. She was forced to rely on human intermediaries who proved unreliable. In her words:

I got rid of my first reader because she couldn't do what I wanted her to do! She just wasn't good at picking up the little things, the lots of little things I wanted her to. "Oh, this looks really good," she would say, and she would scan through the page herself. "Oh, that's okay," and then we get it back with all these red dots over it ... (#7, 6 February 2001).

Against this backdrop ACT provided an alternative means of accessing information, as described in the following section.

#### **6.2.1.1 ACT's Facilitation of Information Access**

Current computer technologies allow two methods of information access, either in print (as in hard copies of documents and handwritten documents) or in electronic format. Hard copies or typed print documents can be converted to digital formats by use of scanning technology, so that the blind recipient can access information in braille or

through voice output programmes (see Appendix 3 for types of ACT used by study participants).

Handwritten documents are often more challenging to process because current technology largely copes with them either badly or not at all (Roulstone 1998).

Electronic print is accessed fairly easily and quickly as it eliminates the need for scanning to convert to digital format. This explains the apparent usefulness of email that people like Jack (#28 p.170) and other participants consistently express throughout the study.

ACT-related information access has impacted blind users in a variety of ways. These are independence from intermediaries and/or reduced dependence, access to increased and autonomous sources of information and facilitation of communication. We will now examine these benefits in turn.

#### ***6.2.1.1.1 Independence from Intermediaries***

Independence from intermediaries occurred both in terms of the blind person's freedom from human intermediaries and autonomy from organisational intermediaries like the Foundation.

In the case of freedom from other human beings, ACT relieved blind users from the need to depend totally on human intermediaries and consequently increased their control over their situations. It meant that they had direct access to information and could input information directly into computer systems, effectively eliminating middlemen or human intermediaries.

This independent access to information, apart from its other beneficial features, alleviated some of the negative psychological and social consequences of dependence felt by these individuals. For example, Bob recalled this as one of the major effects of technology on his independence in his work performance:

Another area in which computers have made a huge difference to my working life is getting access to library materials. In the past, I've had to physically go over to the library, try and find someone who'd come and help me find a book and get it out for me. Or else get someone, my wife, to

go and get it for me. It's always been a hassle getting library books and I've always had something approaching fear. The thought of getting a book out of the library and all the hassle involved in just getting one book out. That remained constant for the best part of fifteen years. It was terrible when I was a student and it was terrible when I was a lecturer. There was no adequate help provided, which made me angry. However, once I got Windows NT and JAWS, I could then get onto the library catalogue ... find the books for yourself, that was just so brilliant! And I then discovered that you could also order the books just on the catalogue. That was great (#8, 15 January 2001).

Direct access to information meant that the individual could obtain uncensored information, as expressed by Dave who pointed out that technology has:

...allowed me to be more independent and, you know, to gain the information myself and not be reliant on others. So it means that I can actually get out there and see what's happening and not having, you know, everything fed to me through filters. So, I call it the mushroom syndrome (#9, 20 February 2001).

The "mushroom syndrome" according to him exists where he is:

Left in the dark and fed bullshit. So, eventually it's freed me from being in that mushroom syndrome (#10, 20 February 2001).

ACT also meant that the user could exercise greater control, choice and flexibility over use of time and activities. Control of time was an important benefit to blind participants as dependence on intermediaries usually meant exposure to the time availability of the reader. This in turn meant that blind individuals were called upon to be flexible, patient and accommodating of other people's priorities, time and schedule regardless of personal cost to themselves. For people like Martin this newfound flexibility was important for reading newspapers and other personal daily activities:

Before maybe when I wanted to read the newspapers I had to ask friends to read it for me. Sometimes the friend can't read the whole thing because

they don't have time or they have something else to do. So I have to check the specific article or page. But now, I read by myself. Whatever I want to read, I can read (#11, 17 March 2001).

With regard to autonomy from organisational intermediaries, participants reported that printed information was often sent to intermediaries such as the Foundation or Homai College where sighted people would read it onto tapes to make it accessible. As the major provider of adult blindness services, the Foundation was a critical source for dissemination of information to blind and visually impaired people regarding technology products and services. It offered them a range of media through which to access information: library books on tape or braille, a telephone information service, email listings, a quarterly feature magazine and various other specialised publications such as guides to students in tertiary settings, distributed through disability coordinators throughout New Zealand.

Total dependence on this intermediate stage has been eliminated with the application and use of computer technologies. While this is a desirable result it appears that this particular benefit of ACT has resulted in a paradox, replacing dependence on traditional human and organisational intermediaries with dependence on itself. In the next section we explore this question as it demonstrates one of the key differences between blind and sighted people's relationships to computer technology.

#### ***6.2.1.1.2 The Paradox of Technology Dependence***

Having relieved the blind individual of almost total dependence on sighted human and organisational intermediaries, it appears that ACT has substituted for this dependence on itself. In this section we explore this issue.

ACT has become a critical tool for people to function. Technology has substituted for human intermediaries and has become an integral part of blind individuals' ability to perform. Rhona, a senior manager, expressed ACT's value:

I have never thought of it as computer technology. I've thought of it as, the outcomes I need to achieve are the ability to read and write and communicate with others at speed and accurately. And the tools for that happen to be computer technology, but the goal is communication,

effective and efficient communication, and that's what it's about. It's sort of like, we talk a lot about computer technology and I don't know why, because it's like asking a sighted person "Why do you use a pen?" or "Why do you use a pencil?" or "Why do you have that kind of notebook?". I mean, well what else would you do? (#12, 13 February 2001).

Rhona's comparison of the relationship between blind users and ACT with the dependence of sighted people on paper and pens raises the important question of the qualitative difference in the nature of their dependence on ACT. While computer technology generally facilitates performance for both blind and sighted people, it appears that for blind people there is an added dimension of empowerment that has made its impact on them more pronounced.

This is because while sighted people could access information from older media of presentation such as books and billboards, they placed blind and visually impaired people at a disadvantage. Therefore new ways of presenting information such as electronic print added a unique dimension of independence, control and quality to visually impaired people's task performance. Nick, an IT manager, discussed this issue:

If you think about what computers are to a blind person, if you turn the clock back and then realise what it was before then, well of course if you are using your computer and it totally breaks down, then you suddenly realise how dependent you are on it. You can't just get a pen and paper out and keep writing if you've still got to hand something in or finish a report ... So if the computers we have stop functioning, we stop functioning in our professional jobs (#13, 14 February 2001).

This view was reinforced by other participants' experiences. Twelve people argued that their technology was indispensable for them to remain in their occupations because of their impairment and their need for its help in carrying out daily tasks such as reading email and correspondence and word-processing. Rhona asserted that:

There's no way I could do my job [as a senior manager] without computer technology. I'd have to resign (#14, 13 February 2001).

For Dave, technology compensated for his impairment and he was therefore dependent on it to function in his job:

It virtually becomes my set of eyes. Adaptive technology has become my eyes. It has given me a new set of eyes (#15, 20 February 2001).

This dependence, as we will see in Chapter 8, implies a vulnerability to technological change. However we will continue to discuss ACT's beneficial effects, looking in the following section at sources of information among blind users.

### ***6.2.1.1.3 Access to Autonomous Information Sources***

By eliminating the need for organisational and human intermediaries, ACT also resulted in greater access to autonomous sources of information. This benefit was important because despite its information mechanisms the Foundation did not always provide relevant information; also, as noted by Catran and Hansen (1992), blind people have traditionally been subjected to subtle forms of censoring through the intermediary roles of volunteer readers and other institutional features such as copyright provisions.

More importantly, this benefit also proved pivotal for them to make their own appropriate choices. This was clearly evident in their experiences with technology selection and matching. As we reported in Chapter 4, participants in detailed interviews were typically introduced to technology through both formal and informal means. Formal means comprised paid and voluntary work, organisations such as the RNZFB and educational programmes. Informal means included personal initiatives such as individuals doing their own research, friends, colleagues, co-workers and family.

People who appeared most satisfied and confident with their grasp of technological developments were those who engaged in personal proactive initiatives to exercise control over access to technology. Reggie described these initiatives:

... I am a very independent fellow. And I believe in choice and in making choices. And I have found that the Foundation does not offer those sorts of choices, that they tend to provide software and equipment that they believe that blind people need. Now I've never been very fond of that approach. So I've always considered very carefully what best suits my needs. The

Foundation and their staff recommended JAWS to me. I trialled JAWS for about three months. I also discovered that there was another programme that was available and that was Hal NT. I tried their product. I also downloaded from the internet another two or three programmes - Winbridge. I've trialled their programme and I've found Hal NT to be totally adequate (#16, 28 February 2001).

Reggie's experience was repeated throughout the study with 16 other participants independently finding out about various types of ACT, obtaining demonstration versions and then choosing the most suitable ones. This strategy of informed proactive engagement in technology selection gave them control over the appropriateness of technology with which they were eventually matched. For example, Brian noted that after familiarising himself with available technologies he entered into dialogue with the Foundation's assessor, who eventually acquiesced to his own choice of technology:

I sort of said to Workbridge what I thought I needed, based on my own knowledge and then talked that over with the vocational advisor at the Foundation for the Blind, and he either confirmed my comments or added in some suggestions of his own that I said yes to, and that was basically that (#17, 21 April 2001).

This kind of informed choice and independent information sourcing was a relatively effective means of empowerment. First, it made visually impaired people less vulnerable to the limitations and weaknesses of people acting on behalf of agencies, an idea which is discussed further in Chapter 8. Second, it enabled them to access ACT relatively early in the revolution. As we noted in Chapter 4 the state, the Foundation and the ABC had been relatively slow in promoting ACT use. Against this backdrop study participants had seized the initiative to empower themselves through ACT. Third, it enabled them to respond relatively quickly to a rapidly changing social environment. During the period of the ACT revolution social philosophies had shifted from a sheltered welfare environment in which they were to be cared for by the state and NGO-operated institutions, to one where they were now expected to care for themselves. In the context of vocational empowerment this meant entry into mainstream education and open labour market processes to compete on an equal footing with their sighted counterparts.

ACT and its resultant information management benefits were important prerequisites and resources for improving visually impaired people's chances in life. Moreover, it enabled them to begin to exercise greater control over their everyday situations within a wider sphere. This was evident for example in its effects on communication, which is the subject of the next section.

#### ***6.2.1.1.4 ACT and Facilitation of Communication***

In section 6.2.1 above (p.150) we reported that visual impairments placed study participants at a disadvantage in relation to communication, especially in written form. We now describe how ACT has affected their ability to communicate.

ACT affected three formerly problematic aspects of communication for blind people: their ability to access information, to process and reproduce information and to transmit this information to potential recipients. This is noteworthy, as communication appears to be an important benefit of ACT for study participants. Survey results showed that it was a benefit for most people (51, or 59.5 percent of users), while 21 personal interview participants (42.9 percent) found communication benefits important in their performance on both personal and professional levels, as Doug explained:

I think it means that when somebody communicates with you, they know that you are understanding exactly what they are putting through ... If say I had somebody to read a letter that came in the mail to me, that is different from using technology, because I can speed the technology up, slow it down, re-read certain parts, read it at a time of the day that I think is appropriate for that particular piece of information - all those sorts of flexibilities that you wouldn't necessarily get with a sighted person reading for you. And also I think it gives me the opportunity to, say, compare that piece of information with some other information that you also have on your system, in order to respond to it (#18, 10 February 2001).

ACT also facilitated the second aspect of communication, information processing and reproduction. For instance, it overcame problems with handwriting experienced by six people. In the first place, severely visually impaired people could not read handwriting and secondly, could often not write legibly enough for other people to read. ACT

eliminated this problem altogether by enabling them to access electronic print and to respond in electronic format. Buzzeaxena explained:

I found email was really good and especially with handwriting. Because my handwriting is so atrocious I really hated writing letters to people and I felt that typed letters were too formal. And so I found email is quick and it's got that instant kind of feel to it. It's really good (#19, 9 February 2001).

ACT, especially email and the internet, also had positive effects on a third aspect of communication, transmission of information. It allowed direct communication between totally blind people, by alleviating problems encountered in trying to prepare documents in alternative formats such as braille or large print to accommodate the varying needs of each blind individual. In addition ACT was important for communication between blind and sighted people.

ACT's effects on communication were important because communication is a prerequisite for social involvement. For blind users it also became a catalyst for social participation. These ideas will be expanded when we discuss the internet in section 6.3 (p.169).

Up to this point we have been looking at information access. ACT has generally had a positive impact on users' capacity to access information. While we have already considered information processing in the context of communication, the following section looks more generally at this second aspect of information management.

### **6.2.2 ACT and Information Processing**

Information, as we established in Chapter 1, is a key resource for people to begin the process of self-empowerment. Blind and visually impaired people are faced with particular difficulties in processing information, whether in simple ways like word-processing or in more complex interaction with information such as preparation of lectures and carrying out other tasks (see #5 p.150).

ACT was a key facilitator of information processing for study participants. This section briefly explores how it impacted this activity. We begin first with a summary of its effects from the perspective of survey participants.

### **6.2.2.1 A Quantitative Assessment of ACT's Impact**

In this section we present a quantitative assessment of participants' perspectives. The survey enabled us to summarise their perceptions of ACT's impact on their information processing activities.

In this context the term "work" or "task" refers to activities or assignments carried out in a variety of settings such as the home, the academic setting or the professional or job setting. The word "work" was deliberately used in a generic sense with all participants, regardless of their occupational status at the time of the study.

In order to determine users' attitudes to the impact of technology on their work a series of Likert scales were used. Participants were presented with a number of statements to the effect that ACT use had increased or improved the variables listed in Table 11 below. They were required to choose one of five responses ranging from "strongly disagree" to "strongly agree".

Table 11 shows that overall people agreed with statements suggesting that ACT had increased the speed, quality and range of task completion, as these variables yielded means of 4.12, 4.29 and 4.24 respectively. ACT had also increased participants' satisfaction and independence in their level of performance, with means of 4.08 and 4.37 respectively. Most also agreed that it had increased their access to work-related information as well as their participation in work or professional organisations, yielding means of 4.12 and 4.01.

When we conducted a T-test of significance we found no differences between men's and women's perceptions of ACT's impact on their performance. These findings suggest that the impact of technology was gender-neutral and are similar to those reported by Sheldon (2001:153) among impaired British people.

**Table 11: Participants' Perceptions of ACT's Impact**

<b>Affected Variables</b> <i>ACT has increased or improved...</i>	<b>Opinions</b>										<b>Mean</b>		
	<b>Strongly Disagree</b>		<b>Disagree</b>		<b>No Opinion</b>		<b>Agree</b>		<b>Strongly Agree</b>			<b>Totals</b>	
	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	
Speed	2	2.3	5	5.8	7	8.1	39	45.3	33	38.4	86	100.0	4.12
Quality	3	3.5	1	1.2	6	7.0	34	39.5	42	48.8	86	100.0	4.29
Range	1	1.2	3	3.5	8	9.3	36	41.9	38	44.2	86	100.0	4.24
Satisfaction	3	3.5	4	4.7	10	11.6	35	40.7	34	39.5	86	100.0	4.08
Independence	2	2.3	4	4.7	3	3.5	28	32.6	49	57.0	86	100.0	4.37
Information	2	2.3	4	4.7	12	14.0	32	37.2	36	41.9	86	100.0	4.12
Participation	2	2.3	4	4.7	15	17.4	35	40.7	30	34.9	86	100.0	4.01

Key: n = number in sample. Likert Scale: 1 Strongly Disagree, 2 Disagree, 3 No Opinion, 4 Agree, 5 Strongly Agree.

### **6.2.2.1.1 Impact of ACT for Mildly and Severely Visually Impaired People**

This section presents the results obtained when we analysed ACT's impact on these same variables according to severity of visual impairment. From this perspective the results appeared to be more mixed, as shown in Table 12 below.

ACT had a similar impact on the satisfaction levels, participation rates and information access of both mildly and severely impaired users, with means for these variables showing no significant difference between the two groups. For both groups the significance values of these variables were greater than 0.05.

This suggests that both severely and mildly visually impaired participants had similar perceptions of how computer technology had increased their access to work or career related information, increased their level of satisfaction with their work and increased their participation in work or professional organisations.

**Table 12: Mildly and Severely Visually Impaired People's Perceptions of ACT's Impact**

<b>Affected Variables</b> <i>ACT has increased or improved...</i>	<b>Extent of Severity of Impairment</b>				<b>Significance</b>
	<b>Severe</b>		<b>Mild</b>		
	<b>n</b>	<b>Mean</b>	<b>n</b>	<b>Mean</b>	
Speed	51	4.29	35	3.86	.035
Quality	51	4.47	35	4.03	.027
Range	51	4.47	35	3.91	.002
Satisfaction	51	4.16	35	3.97	.405
Independence	51	4.55	35	4.11	.033
Information	51	4.24	35	3.94	.173
Participation	51	4.18	35	3.77	.055

Key: n = number in sample. Likert Scale: 1 Strongly Disagree, 2 Disagree, 3 No Opinion, 4 Agree, 5 Strongly Agree.

However, mildly and severely visually impaired participants differed slightly in their assessments of computer technology's impact on speed of task completion, quality of work, range of tasks performed and independence. This can be seen in the difference in significance values for these variables. From Table 12 above it appears that people in the severely impaired category registered stronger degrees of agreement and disagreement regarding technology's impact on their speed of task performance, quality of work, range of tasks and independence, than those in the mildly impaired category. This is evidenced

by the mean scores for these variables being higher for severely impaired than for mildly impaired participants.

While these differences appear to be relatively slight overall, they do suggest that people with more severe visual impairment perceived that computer technology had a greater impact on their speed, range of tasks, quality of work and independence than did those who were less severely visually impaired. This result is consistent with people's comments above regarding the effects of impairments on their performance. People who were more severely impaired would experience more impairment-related problems, so that the impact of ACT on their capacity to function would be more pronounced.

The absence of significant difference between the two groups on variables such as information access, participation and satisfaction may be explained by the fact that, firstly, even the mildly impaired participants in this study had severe enough impairments to experience some problems in accessing information in everyday situations. Secondly, variables such as participation and satisfaction are not necessarily directly related to the contribution of ACT, but are also dependent on other subjective capacities and factors. Those people who did not believe ACT had had any impact on these areas would have chosen the more neutral "no opinion" or "disagree" categories.

Overall, extent of impairment did not appear to be a major factor in this study. This is probably because, as we noted in Chapter 5, the majority of participants (51, or 59.3 percent) were in fact relatively severely impaired (totally blind).

This result may in turn be due to inherent bias in the way the sample was obtained and in the eligibility criteria for participation in the study. In the first place, people who require ACT generally have more severe visual impairments. This meant, secondly, that including experience with ACT among the eligibility criteria for participants probably attracted such people because they had already had access to it.

Although the Likert scales above provide us with a quick summary of participants' perceptions, they do not explain their responses. We draw on interviews to describe ACT's effects in more detail in the remainder of this section.

### **6.2.2.2 ACT and Task Performance**

From the quantitative data above it is clear that participants felt that ACT usage had positively impacted their task and activity performance. They traced these results back to independence in information access, which spilled over into three of the main benefits that they identified as contributing to their generally positive attitudes to ACT.

These benefits were the increased variety of things they could do, the speed with which they could now carry out tasks using ACT and the improvement in their work quality. Other results such as increased independence, information and participation are treated in greater detail elsewhere because of their importance (see sections 6.2 above, p.149, and 6.3 below, p.169).

We begin with participants' explanations of how ACT increased the variety of information processing tasks they could undertake.

#### ***6.2.2.2.1 ACT and Variety of Information Processing Tasks***

This benefit of ACT was particularly important in work or educational settings where people were expected to perform with comparable competence and efficiency to their sighted counterparts. Independence and information access afforded by specialised technology enabled them to carry out an increased range of information processing tasks, as explained by Tanya, a postgraduate university student:

Because I can access so many other different things myself (#20, 17 April 2001).

Participants identified areas such as table creation, use of spreadsheets, form completion and other tasks that were previously difficult as the main areas in which ACT affected their independence in task completion. Simone explained:

Well, it has enabled me to move around information on the screen much faster, whereas before I might have had to read a whole document in my information to find out something, I can now get the screen reader to find a particular part of the document that I am wanting. [For example] well, Excel, you can use Excel and Access, because it is - both - a table-based

system, and makes it much easier to find out exactly where you are (#21, 23 February 2001).

An important issue mentioned by Simone (#21 above) and other participants related to ACT's facilitation of table creation and management. Programmes such as Microsoft Excel and Access enabled them to avoid difficulties in table construction because of their nature as spreadsheet programmes. This was particularly important where people worked in jobs which depended a great deal on tables, such as accounting. James, a senior accounting manager, explained that:

It's everything to me. If they hadn't produced speech software like this then I don't think I'd be working as an accountant. In fact I'm sure I wouldn't be. In 1993 speech software worked in Windows OK with Word so you could write documents, but it was hopeless with spreadsheets. And my job back then was writing documents. I was writing quarterly reports and annual reports that was all very much text-based type work. Since moving up here it's very much spreadsheet-type work in Excel and the software has since then grown to be able to work well with spreadsheets, whereas originally it couldn't (#22, 14 February 2001).

While these benefits afforded by ACT were similar to those offered to sighted people, for blind users they represented an added advantage because of the difficulties this area had presented in the past. The next section recounts ACT's impact on speed.

#### ***6.2.2.2.2 ACT and Speed of Task Completion***

As noted before, independent information access also improved the speed with which participants were able to complete tasks. Roz, a totally blind senior manager in the public sector, explained:

Before I had a scanner I used to get so much read out for me. And I mean the places where I've worked have been fine about it, but I've just been aware that it is a waste of someone else's time when they could be getting on with something else. So, definitely using the scanner. And also since the braille embosser technology has been available, because now if I'm going to a meeting and I've got to have some notes, say we're looking at a cabinet

paper or something and I want to have that in front of me, provided I get it early enough and usually I get it as an attachment on email, so all I have got to do is put it through the particular braille embossing software programme, and bingo, I've got a braille copy (#23, 21 February 2001).

For Roz, ACT increased her speed of task completion by eliminating dependence on intermediaries. In the first instance, it relieved her of the need for human readers and reduced the time spent in waiting or soliciting help.

In the second place, it shortened information processing procedures by permitting her to input and access information directly into and from the computer. Visual impairment sometimes meant that individuals spent long, intensive hours accessing data, thus requiring them to put in more hours than their sighted counterparts to complete the same tasks. Specialised computer technology compensated for the deficit in functioning caused by visual impairment and thus sped up performance.

Apart from increasing speed in task performance, ACT also improved participants' work quality. This was an important benefit, which is explored in the following section.

#### ***6.2.2.2.3 ACT and Enhancement of Work Quality***

Technology enabled 46 interviewees to control their own and others' work quality in personal and professional settings. This benefit was important because they had been vulnerable to spelling errors, poor formatting and other problems stemming from their visual limitations which had affected their overall work quality (#5 p.150, #7 p.152).

Computers gave them control over work quality in intensive word-processing areas such as writing. Functions such as the spell-checker permitted them to insert corrections. This function was important as it largely eliminated problems encountered in carrying out this task, as Muriel explained:

Like for my own self, being able to type and correct, 'cause I mean although I can touch type, because I've got long fingers I'm not that correct. I still make mistakes ... So it's quite good because now I can actually correct any mistakes as I go along or fix them up afterwards, before I print them out. Whereas when I used to use an old manual

typewriter ... well, it was a bit of a pain actually. You'd have to go through along with an eraser and kind of wipe them out. So that's really good (#24, 23 February 2001).

Five participants reported that apart from typographical errors they also encountered problems spelling words because of their inability to see and confirm them. This was due to the fact that words are usually spelt out in printed format while braille often uses contractions and symbols to represent them.

ACT such as JAWS and other screen readers enabled visually impaired users to listen to the spelling of words, while other inbuilt features in mainstream technology facilitated control and work quality improvement. In Roz's example (#25 below) mainstream features such as spell-checkers and Windows macros were particularly important compensatory facilities:

Well, mainly because like a lot of people in my position, my spelling is absolutely terrible. And the spelling checker on the computer just makes it better. Because I could get it just about right, but it was always just that little slight bit wrong. So that made a really big difference (#25, 21 February 2001).

Another way in which ACT enhanced work quality for eight participants was by allowing them to present documents in a professional-looking manner. This was crucial, as with analogue technologies such as braille and typewriters, more severely visually impaired users were often unable to exercise control over the way documents looked. People for whom this benefit was important noted that computer technology had standardised, predictable formatting templates that they could use with some certainty as to the way documents would appear. Rudy reported:

In the times that I used the PC when it was working, it really did put a shine on everything I did (#26, 20 April 2001).

By allowing users a variety of standardised formats and font options ACT also eliminated the problem of illegible handwriting, as Margie related:

Just for the fact that you are not hand-writing, so it is a lot neater, a lot more presentable (#27, 21 February 2001).

This section has been dedicated to describing ACT's effects on information processing. Overall it is clear that it has had a positive effect on areas of work performance in which sight limitations and dependence on others had made people vulnerable. These areas have largely been tangible and measurable. For instance we can measure time, observe work quality and see information sources. However, ACT also impacted intangible, subjective areas that are more difficult to measure, such as participation or feelings of competence.

In the next section on the internet we examine how ACT affected these intangible aspects of empowerment as blind and visually impaired people began to use it to their advantage.

### **6.3 The Internet**

Until now we have been talking about ACT in general. In this section we discuss the impact of one particular form of ACT - the internet. This technology deserves our special consideration because of its far-reaching impact on the lives of our study participants. In the following two sections, we firstly explore its effects on their capacity to access and manage information. Secondly, we consider how improved information management capabilities have also increased their ability to communicate and participate in wider social processes.

Of particular interest to us in the study was the fact that the internet appeared to be evolving into an alternative source of empowering information for blind New Zealanders. For some people it enabled them to keep abreast of developments in their fields of personal or professional interest. For other participants such as students the internet appeared to be a critical tool for conducting research or communicating with their tutors and lecturers. In other instances, the internet was important to people who were job-hunting and advertising. Six people reported in interviews that they used internet sites for job-seeking purposes and one individual noted that he used it both for advertising for customers and for job-seeking.

This kind of technology was particularly beneficial because information was presented in electronic format that participants such as Jack found useful:

The biggest plus nowadays is email. Because with attachments all these documents can arrive from all over the place, from my physiotherapy society as attachments and you've got instant reading, which outweighs the old fax and the scanner just so hugely ... I use OpenBook as well but I find that more and more I am requesting people to send them as attachments in emails, because they're instantly there ... The OpenBook scanning programme is good but once again it has lots of hiccups, I get lots of gobbledygook sort of documents. Well of course the email, that just doesn't happen (#28, 15 February 2001).

The internet was very important because it facilitated choice in people's recreational and professional lives. As Jude saw it:

The internet is a very enabling technology for a blind person. I mean, even before you go to speech access. If you go into somewhere like the New York Times or the Evening Standard or whatever and listen to the news stories of things which have gone on around in your city. Things that we've never really easily been able to do. It's all possible now. That's why I like it (#29, 5 June 2001).

The internet increased users' independence, comfort and dignity when performing tasks in everyday and professional situations. For example, blind specialist interviewees like Jonathan Mosen reported:

There's the whole area of dignity and independence ... I've never been a fan of going to the supermarket and having some reluctant staff member pulled off whatever they were doing and drag you round the supermarket. And you feel like you're in a big hurry to get it done because you feel like you're imposing. I just found it wonderful to log on to the Woolworths site, wander round and for the first time have a really full idea of the range of products in a supermarket, to take my own time, put things in the virtual trolley and take them out (\*C, 24 March 2001).

From the survey it was clear that the internet was becoming very popular among study participants. Email and the World Wide Web were the two main internet facilities<sup>19</sup> identified by blind and visually impaired people as those they used. Of the 57 people who gave multiple responses regarding the internet facilities they used, 96.5 percent used email and 45.6 percent used the web for things such as browsing.

Email's popularity over the web can be explained by the relative ease with which study participants could use it as opposed to the web where they encountered inaccessible websites. Email allowed people who found accessing information extremely important to do this with relative speed and ease. This empowered them in terms of the timeliness of information, the sense of freedom, independence and the ability to access empowering knowledge. As Dave, a totally blind user, reported:

Having a computer and the internet is a way of being free to read a lot more independently instead of having someone here to read all the documents and everything to me. It's a way of giving me freedom to access information and read it for myself. And be more independent ... I probably read about 30 hours a week - reports and different things. So I have kept my knowledge base up, like I'm on quite a few email lists and that's made it a lot easier too, getting onto email groups and stuff like that, and the lists where the information is sent to you and which has made life a lot easier than going out there searching for the information all the time. Now it starts coming to me ... So I don't have to wait for a book to come out from England any more, or magazines from America. And that's the beauty of the internet - it has made it instantaneous. And to have that instantaneous access to knowledge is the greatest asset that I have found [to be] the key to being successful (#30, 20 February 2001).

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<sup>19</sup> Although the terms are often used synonymously, there is more to the internet than the World Wide Web. Instead, the internet is layered, with various levels of protocols and with applications running on top. Both email and the web are examples of a number of different kinds of applications using internet technology. Chatrooms would be another example. We follow general parlance (and participants) in parts of Chapter 6 in saying "email and the internet" when in fact we mean "email and the web". However, whenever "internet" is used alone it refers to the technology in its entirety.

Use of email was promoted formally by the RNZFB and the ABC, and with the help of other informal actions by individuals who established various connections and networks, email appears to be an increasingly popular alternative means of information access and communication.

The positive features of the internet became major building blocks for greater social contact and interaction by blind users. The next section looks at the role of this technology in alleviating social isolation and enabling greater social participation.

### **6.3.1 ACT and Social Participation**

As we argued in Chapter 1, social participation is both an indicator of empowerment and a critical element for long-term empowerment of individuals and groups. Overall, computer technology appears to have had a beneficial impact on group participation, as survey responses in Table 11 and Table 12 above indicate. This is also supported by detailed interviews, where it was noted by 29 participants, including two specialists.

ACT was particularly important for alleviating problems of communication to which participants were prone. Email compensated for these problems in a number of ways. Most important was its function for 20 interviewees as an alternative communication tool, enabling them to keep in touch with family members and friends both in New Zealand and around the world. As Matthew, a blind immigrant to New Zealand, pointed out, it was cheaper, quicker, and more readily accessed by the intended receiver of the communication:

Well, for me it's basically another communication tool like the phone ... It's like a short letter, you know, and of course, it's cheaper than the phone ... I use it as an alternative communication tool to get in contact with people. Sometimes here in New Zealand, people can't reach people by the phone. And it seems you can reach them by email (#31, 27 February 2001).

Stemming from its facilitation of communication, ACT became a major facilitator of participation for people with visual impairment. It did this in three ways: through increasing blind people's social contact and control; lessening their isolation and increasing social inclusion and participation; and minimising stigmatisation, consequently promoting the appearance of normalcy.

**1. Social contact.** ACT, especially email and the internet, facilitated communication between visually impaired people and friends. The internet enabled them to make contact and interact with people. Jude explained:

I type to people quite a lot during the day, so I do have a bit of interaction with people that way. I talk to some people on what we call internet phone which is a very cheap way of talking and costs us nothing to anywhere in the world. A mate of mine in Christchurch and I, we often have a couple of our phone calls this way ... We enjoy it. I mean, we just sit there with the headphones on and talk away (#32, 5 June 2001).

Among the various benefits internet and email technologies afforded, they offered a cheaper source of social interaction with people both locally and internationally. This enabled visually impaired people to extend their social network beyond the boundaries of New Zealand. For example, this technology allowed participants to participate in groups for recreational purposes as well as to maintain friendships with people overseas. For Tamika, an isolated farmer in the New Zealand rural community, these were significant benefits:

Because I'm in touch with people all over the world on the internet. I'm in touch with people with far greater knowledge than I could ever meet here (#33, 3 April 2001).

**2. Social inclusion and participation.** The internet was also a source of inclusion and a facilitator of professional and social interaction for some participants. It achieved this by enabling them to maintain contact with acquaintances and professional colleagues and reducing the sense of isolation they sometimes experienced. Six interview participants identified this particular benefit of email. Bob reported:

... We communicate in email all the time. So I'm in touch, just from the point of view of my job I know what's going on more. But much more than that, it's eliminated a lot of the isolation which I wasn't aware that I suffered. I mean, obviously I could write letters and get letters back, the irritating thing about that when you are blind is that you've got to get someone else to read your letters. Now, I don't mind if my wife reads me

letters - it just means that you don't communicate with old girlfriends and things like that, but even if you've got a trusted partner to read you your letters, you much prefer reading your own. Email allowed me to communicate freely with people who I'd been out of touch with, or I'd get in touch with by telephone and I can just flick messages backwards and forwards (#34, 15 January 2001).

Internet technology enabled participants to interact and communicate with others, develop strands of interdependence and become involved in groups, both virtual and physical. For some people this also spilled over into other benefits such as a sense of belonging and identification with peer groups. Buzzeaxena explained this:

So I think the web has really helped and email is just great. Because I can sort of make contact with a huge number of people ... I've got a lot more friends out there now who are all over the place who have a similar experience to me. The only other albinos I'd ever seen were my two brothers before that. And when I got on the internet it was just crazy you know, 'cause you could see suddenly all these other albinos and there were so many of them. And all doing so many different things and it was really really amazing. It was really cool. It was just wonderful to see that people had similar experiences ... (#35, 9 February 2001).

**3. Minimising of stigma.** Technology can lead to the diminution of stigma in mainstream environments, a view shared by study participants. Owing to the partial anonymity afforded by the internet, visually impaired individuals had control over the extent or media of disclosure of their impairment. This in turn protected them from negative attitudes and stigmatisation from general society, potential clients or employers, which sometimes prevented them from group participation.

This benefit was important in cases where they were working in mainstream environments, where blind and visually impaired people reported that they sometimes experienced social prejudice. Brad argued:

... I think also that technology can take away stigma. I mean if I participate in a dialogue with a potential client or an email discussion, whatever it may

be, or business or social purposes, the person at the other end doesn't need to know I'm blind unless I choose to tell them (#36, 24 March 2001).

In short, the internet had become a hub for social functioning. As such it functioned as a centre or medium through which people could experience independence, access information and exercise control in group settings. Participants were being empowered to become involved in a range of social groups and activities. This was particularly important for twelve people who reported that they participated in professional groups through email.

Group participation occurred in two spheres: participation within the blind and visually impaired community and participation with the wider non-visually-impaired community. These two aspects spanned different types of social, professional and political groups. Participants were involved in a range of social groups such as recreational organisations, social clubs, sports clubs, and friendships. Professional groups were those directly related to the particular profession or job, whether this was paid or voluntary. More political groups comprised organised voluntary movements of people designed to influence social and political processes in favour of people with impairments.

This section concerned the effect of ACT (mainly the internet) on social participation. It noted that the internet's beneficial effects on information management and communication have resulted in increased capabilities and social participation for users. The internet enabled them to become involved in social settings because of its facilitation of social contact, lessening of social isolation and reduction of risk of stigma from external environments.

Implied in these findings is the issue of people's response capability. In order for them to appropriate the internet's benefits, blind users had to have the capacity to respond to the changes generated by this technological development. This response also meant that they could further utilise the technology to continue to improve their ability to respond to ongoing change in their environments.

This idea is the third important aspect of personal empowerment for our study participants. We explore ACT's impact on their response capability below, in the context of widening educational opportunities.

## **6.4 ACT and Response Capability: The Educational Context**

Central to the notion of empowerment adopted in Chapter 1 is the idea of people taking control of their circumstances. We argued that for blind people to become empowered through ACT, they must attain the capacity to be included in society with full participation in the systems of society however they as individuals wish (p.19). Implicit in this idea of empowerment is that of response capability. In order for visually impaired people to participate in society they must have some capacity to respond to the impulses, demands and requirements of the processes in which they want to participate.

One of the major changes in visually impaired people's vocational environments is the widening of educational opportunities presented by ACT. In this section we explore how ACT has affected users' response capability in relation to changes in the job market and the availability of educational opportunities. Before proceeding however, we set the context with a brief explanation of how visual impairment affected their educational performance before ACT's emergence on the scene.

Prior to ACT's development, people with visual impairments encountered difficulties when performing in classroom settings, mainly due to the predominant use of visual training delivery methods. This was especially true for five participants who came from a mainstream educational background. Margie recalled:

I wasn't able to see the board. It was a shiny green blackboard that was on a roller so they used to use different coloured chalks on it, and even if I sat up front I wouldn't be able to see. There was no encouragement or anything, or notes being able to be given in a different format, or anything like that. So it did make it very difficult, and any work that you did manage to write down often didn't make sense because you were missing words and things like that (#37, 21 February 2001).

In some instances this led to visually impaired people leaving school with poor literacy skills. For example, five totally blind participants reported that they were functionally illiterate upon leaving school. Visual impairment was thus sometimes a hindrance to performance, both personally and professionally.

Against this backdrop ACT, through facilitation of skills access or upskilling, provided an alternative which reduced the negative effects of impairments and enhanced users' capabilities to respond to changing external environments, in at least two dimensions. The first involved acquiring further mainstream and specialised technological skills. The second included reskilling and upskilling for better jobs or careers and comprised either specific job-related training or general educational upgrading. The following sections describe participants' responses to these opportunities.

### 6.4.1 Acquisition of Technological Skills

Acquisition of technological skills was increasingly recognised as a critical factor in helping people with impairments to perform (as shown in Table 13 below). This section looks at the major impulses that propelled study participants to become involved in ACT training.

**Table 13: Main Reasons for Technology Training**

Main reasons	No. of People	Percent
Job	44	53.1
Personal interest	18	21.7
Rehabilitation	12	14.4
Study	9	10.8
Family, friends and colleagues	4	4.8

(83 people, multiple responses)

The picture was similar in both the survey and interviews. Participants believed that ACT's potentially empowering features were irresistible imperatives for them to access technological skills, as Claudia stated:

I'm just getting on my hobby-horse. But I do think that it's just so crucial to adjust one to blindness (#38, 3 April 2001).

In response to their perceptions of its empowering potential, participants began to access computer technology training. Ten interview participants reported that they had undertaken technology training for a variety of personal and non-vocational reasons, ranging from simple interest to information access and management; communication, letter-writing (due to handwriting problems) and reading newspapers; personal preparation for the job market; and game-playing and other recreational purposes.

Tasks for which ACT training was accessed included learning about the computer, with participants learning skills such as typing or programme features; help with specific computer tasks such as file management, programme design and word-processing; help with life experience such as aids for sight limitations which facilitated access to information; and learning specific empowering skills, for example retraining in various areas. These tasks appear similar to those for which other people with impairments use ACT, as Lee (2002:150-1) found in her study of physically impaired people in Britain.

Other than their personal interest, participants responded to three main impulses for developing ACT skills, emanating from their external environment. We now consider these in turn.

#### **6.4.1.1 The Impulse of the Job Market**

In New Zealand, as in other OECD countries such as France, Germany and Japan (Scadden 1992 and Okada and Yatougo 1992), ACT had a contradictory effect on work tasks and opportunities for blind people. While computer technology-driven changes created new opportunities, as described above, they also resulted in the loss of jobs previously open to blind and visually impaired people. These casualties were evident in areas such as telephone operating, clerical and assembly-line work. In this section we explore how participants responded to this new job market.

The new job market resulted in an increased need for blind and visually impaired people to upskill to become competitive in a more complex, demanding, multitasking environment. Judy Small, a placement coordinator with Workbridge, explained:

... Telephonist, reception, darkroom, those sort of jobs are disappearing because they've been automated with the new telephone system, and the idea that blind people are good at handcraft and assembling, that all went in the eighties with globalisation and all the imported goods coming in from Asia. It has had a huge impact on blind people's occupation in the labour market. Before Workbridge, there was an attitude that blind people were good at particular jobs. Unfortunately lots of those jobs have disappeared, and they've become tagged on to more highly skilled jobs (\*D, 6 February 2001).

Figures in Table 13 above show that of the 83 people who gave reasons for undertaking technology training, the largest group of people (44 or 53.1 percent) reported that their jobs required it. Interviewees reported a variety of work-related reasons for upskilling, such as keeping their technological skills current, personal competence in the workplace, making themselves more flexible in relation to the labour market and computerisation of workplaces. These results indicate that blind users had begun to respond to the need for greater skills in this more competitive new job market.

This finding mirrors trends cited in the general literature on technology and skills, which note that non-impaired people are also inclined to reskill or upskill in response to changes in the macro environment (Christie et al. 1990, Garson 1995).

In the following section we look at study participants' efforts at retraining and reskilling.

#### **6.4.1.2 Preparation for Wider Educational and Vocational Opportunities**

As noted in the previous section, blind participants began to reskill in order to adjust or readjust to the new job market. Jason, a soldier and chef who was accidentally blinded, explained:

Yeah well you know there are not a great deal of people in the hospitality industry who want to employ a blind chef, purely from the safety aspects. So it was a case of I had to find something else to do and at that time I wasn't qualified to do anything else ... And I knew how to kill people and blow things up and there's not a great call for blind people blowing things up in everyday life. So that was sort of the thrust towards me going back to school and getting a degree. And probably I'll be looking eventually at doing either teaching or psychology as a profession I think (#39, March 19 2001).

For those engaged in further training and career changes, technology proved a potential facilitator of access to other kinds of work. Brian reported:

... when I got made redundant from my last job in 1991, I tried applying for telephone jobs, but there really wasn't a lot of [demand] around for

telephonists. They all wanted you to do computer work or something else. So I decided I needed to broaden my abilities, or have a career change, or something, so that is why I went on a computer course (#40, 20 June 2001).

From Jason and Brian's accounts (#39 and #40 above) it is evident that they undertook computer training as a means of retraining for other occupations in response to job loss and demands for newer and higher skills. According to twelve interviewees computers were an integral part of their retraining. Brian continued:

It allows me to be able to study. If I didn't have my computer I don't know that I could necessarily do the course I am doing ... I wouldn't cope with braille and all that sort of thing at all, or even audio I don't think, it is just too much volume for audio ... It's allowing me in theory to get a qualification and go back out into the workforce in a meaningful way, which is awesome (#41, 20 June 2001).

As part of their retraining, participants often required computer skills to undertake other courses and programmes. Jason reported:

It was necessity really. I wanted to go back to study, I'd made the decision that I needed to go back to study. I didn't have any qualifications for anything and that was my way of ensuring that I could function as a normal student. Unfortunately it means that I have to write my own essays, but definitely it's given me the ability to sit in class, take notes and write my own assignments and essays and read all the material I need to read and research what I need to research (#42, 19 March 2001).

Apart from facilitating acquisition of new skills, ACT was becoming an alternative career field for New Zealanders generally. The next section looks at blind users' response to this new opportunity.

### **6.4.1.3 Opportunities in Computing Careers**

At the time of the study, computer fields and related disciplines were slowly becoming an alternative career option for some participants. As Doug, a participant involved in technology training, saw it:

... I think ... in New Zealand anyway, the people that get promoted tend to be the people that tend to be IT-savvy (#43, 10 February 2001).

Other participants apparently shared this perception, as they had begun to take computer courses. In the survey, computing and business or commerce were the second most popular areas of training and certification for blind people (Table 15 below). Of the nine interviewees with specific training in computer technology, four indicated that they had selected this as their main discipline. The remaining five reported that they encountered computer courses as part of other disciplines.

Of these four who identified computer technology training as their main discipline, two reported that their involvement was mainly adventitious and not necessarily their original choice. For example, Luke, who worked as a technology trainer, reported that his work required this training:

I just fell into computing. But I did the courses because of my job here (#44, 23 April 2001).

In contrast, the two remaining participants, who were students at the time of the interview, reported that they chose computing as their discipline because they enjoyed it. Steve, a university student undertaking a bachelor's degree in computer systems engineering, noted that he became involved in computing because he wanted to pursue a career in that area:

I think it all started in my interest in computers going back to when I was young, and just that there is no other area that is as interesting as computers (#45, 27 February 2001).

Having briefly reported the major impulses for training in ACT, we move on to consider ACT in education.

## 6.4.2 Technology Use in Education

As we established in the previous section, ACT was used for a variety of reasons in educational settings. This section briefly explains its use in these settings. We look at its contribution to visually impaired people's educational performance prior to the study and its use in education at the time of the study.

### 6.4.2.1 ACT-Enhanced Training and Reskilling

Participants' answers indicated that ACT played a large part in their access to career-related skills and training. From the survey results in Table 14 below, it is clear that for 62 participants, computer technology was important in assisting with education and training in a variety of ways, such as in assignment preparation, word-processing and note-taking, access to information and research and on-the-job training.

**Table 14: ACT's Assistance in Work or Career Related Training**

<b>Assistance</b>	<b>No. of People</b>	<b>Percent</b>
Assignment preparation, word-processing and note-taking	24	38.7
Information and research	23	34.1
Access to on-the-job training	15	24.2
Participation in courses and educational institutions	16	25.8

(62 people, multiple responses)

**Table 15: Most Common Areas of Training**

<b>Areas of Training</b>	<b>No. of People</b>	<b>Percent</b>
Academic	35	43.2
Business and commerce	24	29.6
Computing	24	29.6
Clerical, typist, telephonist	23	28.4
Health	18	22.2
Rehab, counselling and social work	15	18.5

(81 people, multiple responses)

ACT appeared to have contributed to relatively successful education and training outcomes, since participants were quite well educated, as noted in Chapter 5. This perception was reinforced by the fact that they were also trained in a diverse range of areas, representing a departure from traditional areas of skills acquisition. These diverse training areas are listed in full in Appendix 13, and in abbreviated form in Table 15

above, which shows that computing and business or commerce rated second-equal as the most frequently cited areas of training among the 81 people who specified this.

These findings suggest that ACT had an important impact on participants' educational performance. This area, although discussed here briefly, is worth pursuing in further studies. This impact implies that participants had really begun to harness ACT for educational purposes. In the next section we explain why ACT seemed to be so widely used.

#### 6.4.2.2 Current Use

At the time of the study, ACT was continuing to play an important part in participants' education and training. I asked the twelve people who were not working to identify purposes for which they used ACT. Their responses are shown in Table 16 below. They mainly used computer technology for activities revolving around studying. This was because the majority (nine) were students and computer technologies helped them to carry out activities related to their educational pursuits.

**Table 16: Purposes of Technology Use among Non-workers**

Purpose	No. of People	Percent
Research and information access	11	91.6
Communication	10	83.3
Note-taking and personal information recording	7	58.3
Assignment and examination preparation	4	33.3

(12 people, multiple responses)

Usage of ACT among students could be attributed to two factors. First, study participants attributed their preference and use of ACT to its superiority over analogue technology. They identified disadvantages of analogue technology such as the noisiness, relative inefficiency and lack of portability involved in reproducing and transporting information in braille. As Tanya, a full-time student, explained:

When I started at Victoria University I took a Perkins brailier to a lecture and it was just ridiculous. And then of course I used to tape lectures and some of the lecturers used to object so we had a bit of a fight about that. But I mean it's just so much work taping and having to go back and

transcribe, you can't go back and listen to a whole lot of tape before exam time. It's a complete waste of time. And of course the teaching method we used as well was Socratic, we just had short notes. So the computer system worked much much better. How on earth do you tape people questioning and responses? That's how it was, it wasn't just straight lecturing (#46, 17 April 2001).

Some participants felt that braille was somewhat less socially acceptable than ACT. According to Laura (#47 below), this was owing to its noisiness and cumbersome nature, which made it difficult for blind students to make notes in group settings without disturbing their colleagues. More high-technology solutions eliminated these disadvantages, enabling blind students to become less conspicuous and more integrated into the social environments in which they were operating.

I think laptop computers and Braille Lites and things like that are more socially acceptable than Perkins brailers which is what blind people have been using ... But I don't think that they're fantastically socially acceptable in a mainstream sort of environment. They are really noisy. I think they sometimes actually sound like you have a set of drums. I guess people must have tolerated them before we had laptop computers and Braille Lites and things like that. But still I don't think that they're fantastic (#47, 13 June 2001).

Apart from student participants having a personal preference for ACT, they also used it as a result of formal promotion in educational settings throughout New Zealand.

Educational institutions, such as the Auckland University's Todd Centre, the Manurewa High School Resource Room and the University of Canterbury's Disability Support Services among others, provided computer technological accommodation and support services for blind and visually impaired students.

Our brief exploration of ACT's effects on users' response capacity showed that they had made several steps to harvest its potential in response to perceived opportunities. Firstly, in response to perceptions of its empowering potential, participants began to access computer technology training. Secondly, they also began to harness its enabling potential

to retrain for more relevant information-intensive jobs. Thirdly, it also enabled them to enter a wider variety of training areas. Together these initiatives appear to have contributed to them being a relatively highly skilled group of participants, theoretically capable of accessing increased opportunities in a wider environment.

These findings and their overall implications are discussed briefly in the next section, which concludes this chapter.

## **6.5 Discussion and Conclusion**

This chapter set out to highlight ACT's positive effects on participants as we continued to unfold its users' experiences. In our previous discussion of empowerment in Chapter 1, we argued that it meant expanding the capacity of people with visual impairments to enable them to participate in wider social processes. We also suggested that this would necessitate a reversal of the negative effects of impairments on their personal functioning and their lives, so that they would be free to take control of their own personal circumstances.

ACT was promoted by the old mainstream development paradigm and the traditional medical model as the major solution to the problem of empowerment - much to their opponents' displeasure. These opponents, mainly the social shaping of technology and social model schools of thought, argued that there was overemphasis on the role of ACT as a solution, as opposed to the wider underlying structural causes of disadvantage and disempowerment. Technology was not the cure, but only a partial solution. They also warned against over-reliance on this form of intervention as a solution to development problems.

Despite their misgivings, the findings in this chapter have demonstrated that there are major justifications for the use of ACT as a solution to some development problems. Given the reality of impairment, ACT does appear to justify optimistic expectations from both academic and non-academic supporters. Our findings indicate that ACT affected three critical building blocks of personal empowerment for blind and visually impaired people. These are information management, participation and their response capability.

Without ACT, people with severe visual impairments experienced a range of problems with accessing information in a highly visual world. ACT had made it possible for them to access information from both hard copy and electronic printed documents, without many of the problems they formerly encountered.

ACT inherently possesses crucial advantages and capacities that were extremely useful to our participants. These include, firstly, multimedia formats which allow information to be produced in alternative formats at the same time. In our case, text, braille and speech allow the user to access electronic and hard copy printed documents. Secondly, ACT is more systematic and predictable, thus providing the blind user with a relatively reliable way of accessing information. Thirdly, it is responsive to the user, allowing the blind individual to remain in control, to make choices and decisions about processes and procedures. Fourthly, computers are more flexible in terms of time than humans because they never get tired or bored and do not have other pressing obligations, nor do they express negative human emotions such as exasperation or impatience. This allows users to set their own pace of work without additional stress and other negative psychological conditions. Fifth, computer systems can hold a great deal of readily available raw information with less risk of censoring or distortion than with a human being. Sixth, they allow complete and coherent record-keeping which means more efficient use of time.

These features gave ACT users increased ability to independently manage information. Improved information management, especially in accessing and processing information, resulted in other spin-off benefits such as greater speed and improved work quality, among others. Key among these flow-on benefits was communication, which enabled individuals to begin to participate in wider social processes through use of the internet.

ACT's facilitating capacities were not unique to the study participants. For instance, Brachacki (1999:38-41) also noted them in his study of people with dyslexia. While these capacities and their subsequent benefits to participants were not surprising, in terms of both the literature and commonsense expectations regarding the benefits of computer technology for improved functioning, it must be noted that for our participants there was a qualitative difference in its impact. Not only did it enhance their positive capabilities, but it also compensated for their inabilities to function.

As a consequence, computer technology added an additional contradictory aspect to their empowerment, in terms of dependence on the technology. The majority of participants reported that their capacity to function would be either negated or seriously hampered without it. ACT thus reduced their dependence on intermediaries, but increased their dependence on the technology itself. This, as we shall see in Chapter 8, left them vulnerable to changes and developments in computer technology.

The second important “building block” benefit was participation. ACT, through mainstream technologies like email, facilitated its users’ social interaction and participation. This effect was important because blind people, as a consequence of their impairments, were often prevented from participating fully in group settings for a variety of reasons including transportation and mobility (Taylor 2000).

ACT such as email eliminated this disadvantage by its very nature and reduced the problem of mobility. Technology enabled the user to make contact with the social environment by bringing it to the individual, rather than the individual having to go to it. While for Sheldon (2001:160) this was a potential danger for people with physical impairments in Britain because of its risk of isolation, for blind people in this study it was a participation facilitator, as it gave them increased control and impetus for involvement in groups and their communities - as we demonstrate further in Chapter 7.

Participation leads to an increase in personal value, social skills, recognition and the extent of political or participatory competence (Kieffer 1981). It helped people in this study to develop confidence in a manner that enabled them to become actively socially involved. It enabled them to develop actions and strategies, and more importantly to cultivate resources, to attain their goals. These issues too are discussed further in Chapter 7.

The third building block for personal empowerment was response capability. ACT had facilitated participants’ access to information, their knowledge, and their awareness of their social and political environment. This increased awareness meant that they could start to prepare themselves to respond and adapt to the demands of their environment.

This aspect of empowerment was important because adaptation to their social environment was critical for success (Gerber et al. 1992). Participants relatively quickly

seized the advantages offered by ACT to improve their educational and employment capability. These capabilities not only helped them to use ACT at a personal level, but also to access wider opportunities available.

For instance, through education and training participants attempted to gain access to empowering resources in the form of knowledge. As we saw in Chapter 1, knowledge is an important tool to improve both the material and non-material circumstances of groups or individuals. In this instance, ACT enabled them to begin to participate in training and educational institutions that improved their qualifications and would make them more employable.

This implied that blind people's response to their changing employment environment was similar to that of their sighted peers (Christie et al. 1990, Garson 1995). In contrast, Lee (2002) found that the most common uses of technology among her physically impaired participants were for more basic personal and educational skills such as computer awareness, word-processing, recording, text production, writing expressively, literacy, language and social skills, as opposed to more advanced uses such as programming (Lee 2002:151-2). In contrast, our study participants were utilising ACT for help with self-empowerment and with improving their chances in life at a broader scale, making them more equal to their sighted counterparts as opposed to their impaired peers.

The value of this experience should not be lost. Prior to ACT visually impaired people were often disadvantaged in relation to their sighted peers when performing in educational settings and accessing wider opportunities. This was because visual impairment made the education process more difficult. ACT compensated for the problem of visual impairment by improving people's response capability on both a personal and social level. On a personal level they acquired training in its use. This training was arguably more critical for them than for sighted people because it minimised the effects of impairment and the problems encountered in performing in educational settings and thus in accessing educational opportunities. By enabling them to participate in educational environments ACT also increased their access to the wider social resources afforded by such opportunities.

These three building blocks - information management, participation and response capability - are arguably three of the most important areas in which visual impairment makes individuals relatively vulnerable in comparison with sighted peers in similar development contexts. For example, while other traditionally marginalised groups (such as women) do encounter problems such as lack of information or inability to participate (Moser 1989), blind women's problems were exacerbated by their impairment. ACT's arrival addressed these personal disadvantages for blind women, first because it was gender-neutral and secondly because it arguably lessened their disadvantage relative to sighted peers in similar positions. This idea may be worth exploring in future comparative studies.

To conclude, these findings are important in two ways. First, in the context of the wider literature surrounding ACT and development, they appear to emphasise the relevance of old, optimistic, modernist development approaches that see ACT as a solution to some development problems. Within this framework technological change, though still driven by large influential organisations and institutions such as transnational corporations, states and the market, has also allowed development of ACT for the visually impaired through various smaller corporate and individual initiatives. These technologies appear to be solutions to the problem of visual impairment, at least at the personal level.

The second way in which this chapter's findings are important is in signalling the need for more pragmatic approaches to some problems in development. Development approaches outlined in Chapter 1 do not take into consideration the unique circumstances of people like our study participants. For instance, while the larger debates in development studies have criticised older developmentalist approaches to technological development (which have undoubtedly resulted in problems for people without impairments), for people with impairments technological transformation has, surprisingly and mostly inadvertently, led to important benefits, as described in this chapter.

However, this view continues to reflect the optimistic findings of this chapter. While it is not the complete story, the findings undeniably suggest that in reality some technologies can empower some sectors of the population. In this sense they do confirm the value of the much-criticised medical model approach. Moreover, they suggest that despite the

danger of actors such as the state and NGOs relying on these solutions as quick fixes, they are critical for enabling visually impaired people to continue to interact with their environments.

In the next chapter we continue to explore the potential of ACT as we examine how its effects at a personal level have been extended into further benefits in the more external environment manifested in the work context.

# **CHAPTER 7: ACT, WORK AND RESOURCE ACCESS**

## **7.1 Introduction**

In the previous chapter we noted that ACT had a generally positive impact on blind participants' capacities and abilities to function. It affected their ability to manage information, which in turn improved participation and response capability. These benefits and abilities generated others, to which this chapter is devoted.

This focus on ACT's beneficial aspects extends our optimistic discussion begun in Chapter 6. Optimistic expectations of new technology such as those held by Masuda (1981:66) see it increasing work resources and choice. Firstly, it supposedly increases opportunities for work through increasing the use of information. People are able to access more information more quickly and will be empowered to make choices about possible work opportunities, as well as the direction of their social activities. Secondly, they will be able to find work in the new "opportunity" industry which has emerged in response to the need of individuals and groups for opportunities for development.

This chapter examines these expectations with respect to people with visual impairment. Access to employment and work choice are important, as they determine access to empowering resources. As in Chapter 1, we note that gaining resources is a two-stage process. First people need resources in the sense of empowering technology, which makes other resources available, in the sense of the advantages which flow from working. In this chapter we are concerned with the wider resources that emerge from maximising ACT when study participants already have access to it.

Access to resources, in line with our definition of empowerment in Chapter 1, is a crucial determinant of the individual's ability to commence the personal empowerment process. It also means, as we saw in Chapter 3, that blind and visually impaired individuals should be able to exercise some measure of independence from traditional state and institutional led initiatives for empowerment.

The chapter is built around three main themes: ACT's impact on forms of work (section 7.2), ACT and performance at work (section 7.3) and participants' satisfaction with their

work or career situations (section 7.4). We conclude the chapter in section 7.5 with a brief discussion of the findings.

## **7.2 ACT and Forms of Work**

This section looks at ACT's impact on forms of work.<sup>20</sup> This issue is important, as in Chapter 3 we established that both disability writers and neoliberalists see work or employment as a critical strategy for empowerment of marginalised peoples. They argue that it gives people access to a wide range of economic and social resources, both tangible and intangible.

This study also considered work as a possible means by which people with impairments could empower themselves. However, our approach to vocational empowerment was slightly different. While like neoliberalists and disability writers we saw vocational ability as a means of access to social resources, having adopted an alternative development approach to empowerment, we also saw vocational empowerment as an end in itself.

This slight distinction means that vocational empowerment should not be seen only as an alternative to welfare provision, but also should be rewarding to the individuals who are being so empowered. Consequently in the following sections we will consider other forms of work such as voluntary work and self-employment (both of which may have non-monetary benefits) and their impact on the prospects of study participants. Each of these work forms illustrates various aspects of ACT's capabilities. They also reveal how participants have maximised its capabilities to empower themselves.

### **7.2.1 Paid Occupations**

In Chapter 5 (Table 8, p.142) we noted that the majority of the 74 survey respondents who worked (67 people or 90.5 percent) were in paid employment. ACT promoted paid work among participants in three main ways. First, it created new employment opportunities; second, it increased the number of employment areas and third, it

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<sup>20</sup> Because "types" or "kinds" of work tend to be understood as referring to different occupations, we use "forms" of work here to refer to the different ways in which people engage in work, whether paid, voluntary or self-employment.

increased participants' attractiveness to potential employers. We will deal with each of these in turn.

### **7.2.1.1 Employment Opportunities**

This section explores how ACT opened up possibilities for new jobs, and new ways of doing traditional jobs, as Donna explained:

I would agree that it has opened up a world for us ... When I was a telephonist / receptionist, it was primarily just with a telephone. Nowadays you can also do emails or the computer can be used in the job as well. You can now be part of the call centre, where you can look up screens of different things, that you needed (#48, 13 February 2001).

New job opportunities were especially important given blind and visually impaired people's past employment history. Access to employment opportunities for them, as for other impaired people, was restricted both in types of work and sectors of employment (Beatson 1981, Bascand 1987, Bascand and Frawley 1991). Their work options were limited to relatively few occupations such as music, physiotherapy or telephone operating and they worked mainly in sheltered employment or workshop settings.

This was the case in the old, industrial age that was drawing to a close in the 1970s. Before ACT was developed in the mid-1980s, participants were faced with an employment crisis. Workshops were closed down in the eighties and they were expected to move out into the general labour market to find work (Tennant 1996, Lunt and Pernice 1999, Beatson 2000). One traditional avenue of employment had gone and many of the mainstream "blind" jobs in the industrial sector were also being eliminated as an industrial society turned into a post-industrial one.

At this point specialised technology emerged to enable visually impaired people to access the information which was becoming such an indispensable commodity. If ACT had not been developed, they would have been unable to participate in this new post-industrial workplace. In the next section we look at ACT's impact on areas of employment.

### **7.2.1.2 Areas of Paid Employment**

This section looks at new areas of employment for participants. ACT had expanded possible areas of employment for blind and visually impaired people, who successfully launched into a wider variety of jobs than before. According to Ivan Pivac:

Today in New Zealand we have lots of musicians, in academic life, we also have people working for government departments. Basically, most of that is all computer-orientated. You see, because you have to have access and write reports and one thing or another like that. There are a lot more career opportunities for people than there was twenty, thirty years ago. It's a lot, lot broader (\*E, 18 February 2001).

Specialist interviewees identified trends showing that blind New Zealanders were gravitating towards more technology-dependent, information-based occupations as these became increasingly prominent in New Zealand. These included e-commerce, call centres, policy and programme analysis, reception, telephone, secretarial, and internet-based work. Visually impaired people also took up professional occupations such as law, accounting and commerce, work in the knowledge-intensive or knowledge-based industry, lecturing, teaching, research and information dissemination.

In response to these changes study participants, like their impaired counterparts in other OECD countries such as Britain, were also moving towards more high-skilled, knowledge-based service areas as opposed to manual occupations (participants' paid occupations are listed in Appendix 14). In these sectors intellectual and information skills are more important than physical abilities. Judy Small reported:

... I've got people who are doing computer programming courses, a guy doing his master's in counselling at the university, someone doing a veterinary course and also people doing social work, they seem to avoid the trades courses (\*F, 6 February 2001).

She continued:

... Often if it's information-based there's ways of being able to access the information for most people, there're different ways, but they do seem to be going that way (\*G, February 6 2001).

Interestingly enough, it appears that as an occupation area ACT itself was slowly becoming an alternative for blind people. This is noteworthy, as we saw in Chapter 4 that this was a rapidly growing sector in New Zealand. As noted, about 7 percent of survey respondents (6 people) could be said to be working in the IT industry. These people were technology trainers, assessors and salespeople.

Despite the existence of these new opportunities, successful movement into these new areas presupposed an improvement in visually impaired people's attractiveness to potential employers. We look more closely at this issue in the next section.

### **7.2.1.3 ACT and Employability**

As we noted above, ACT opened up new job opportunities for blind New Zealanders. This section explores visually impaired people's perceptions of changes brought about by ACT and their consequent response.

ACT's impact on issues of employability was crucial given visually impaired people's disadvantageous position relative to the labour market (see Appendix 4 on the socio-economic situation of blind New Zealanders). As Chapter 6 showed, participants had begun to maximise use of ACT for educational and vocational skills in response to perceived changes in the job market. This response could also be attributed to its perceived beneficial effects on their employability.

In this new job market, it appears that ACT was indeed capable of helping them to access work, as Jason's experience (#49, #50 and #51 below) showed:

Usually people are too bloody stunned by the fact that I'm blind. People sort of say, have you got computer skills, then you say, yeah, then the next question is how? And you say, I have a laptop and I type like you do. Yeah, it's more a case of explaining how your computer works rather than what skills you have (#49, 19 March 2001).

He concluded that once people are able to overcome initial amazement at the new technology they are often open to being told about the abilities of blind and visually impaired people:

I think once people realise that you're not just being silly and your computer does talk they get over the whole point that your computer talks ... (#50, 19 March 2001).

Jason attributed his current job to his ability to use technology. He explained that his potential employers were interested in his access to technology and his ability to use it. Consequently, he overcame barriers of ignorance and successfully accessed work:

They had questions on how I could do things. It got narrowed down to two, me and one other and they took me back for a second interview and said righty-o, they threw a few problems at me and said well this is what you are likely to come up against, how are you going to do it? Report writing was one of them and record keeping and whatnot and thankfully, I had my computer that day ... so yeah, it did help (#51, 19 March 2001).

This experience seemed to be shared by 14 other participants. Dave's experience supported Jason's claim and demonstrated a clear connection between his technological skills mastery and ability to obtain work after his sight loss:

When I lost my eyesight, I was 22 years of age. It was the result of a car accident. I was a policeman. I told my boss I was going back and the only way I could go back was into the communications area. I needed to have computer skills and things like that to keep logs, to do criminal history checks and have access to the police computer system. So it just forced me into that area and then to be competitive within the sighted world I had to be twice as good as anyone else. And so I had to always be two to three steps ahead of people ... computer skills had to be a high priority for me back in the early eighties. I had to be more than competent at a computer. Where people are now, today, I had to be back in 1982 (#52, 20 February 2001).

Overall, participants believed that ACT had begun to positively affect both job opportunities and their employability. Despite its beneficial effects, some job opportunity problems still remained for participants (these are discussed in Chapter 8). However, this chapter focuses exclusively on ACT's positive impact. We continue this discussion in the following section as we look at self-employment.

### **7.2.2 ACT and Self-Employment**

This section is devoted to self-employment and its contribution to empowerment of participants. While only a small number overall were self-employed (five in interviews and 17 in the survey), it was nevertheless a crucial indicator or means of empowerment for blind people in this study. This is because attitudinal barriers apparently force people into this kind of employment, as Jonathan Mosen noted:

... A lot of blind people are self-employed actually and that's probably because of the somewhat conservative views of the private sector (\*H, 24 March 2001).

The value of self-employment as an indicator of empowerment was particularly highlighted in instances where people voluntarily chose it as an option. In other cases it represented a more forced alternative, which people used as a means to empowerment in response to negative situations they faced in the labour market.

Self-employment's validity as an indicator of empowerment was reflected in many visually impaired individuals' perceptions of its desirability and its capacity to enable them to exercise independence and control in their own affairs. For example, people like Matthew expressed their desire to be self-employed because of the benefits that they perceived accompanied this status:

Eventually I will have to be self-employed. I can see a lot of scope for disabled people in general to be actually self-employed ... Because you create your own workplace, you probably would choose something which you like doing or that you can do with your disability. By being self-employed, you don't always have to go to the employer and say, I need this or I need that or the other thing (#53, 27 February 2001).

Self-employment reflected the proactivity, initiative and competence of many blind people to create their own opportunities and control their vocational circumstances. For example, it gave them autonomy and control over their employment status and labour force attachment. Mike noted that his farm forestry business was a part-time undertaking that permitted him to pursue his professional goals:

... I guess it's the challenge of being self-employed. I wouldn't say I'm motivated by money, but it's quite good to be a bit more in control of what I actually do ... It gives a little bit more flexibility to only work three days a week if you want to, or to work seven days a week other weeks (#54, 19 April 2001).

As a matter of choice, self-employment allowed a measure of flexibility and autonomy and thus was a valuable alternative allowing people to organise their home and work situations to suit their personal circumstances and interests. Juanita reported that she left external paid employment for this reason:

... I wanted to keep working but I still wanted to be able to be at home for my daughter and I thought, now how can I provide both, and originally I thought, well, I might manage to pick up say 20 hours' work a week if I'm lucky and I'll just do it when she's at school and bits and pieces. 'Cause when I first started she was quite small so I could work when she was asleep or various things and at that stage my husband's job was shift-work so our household was never very routine. So it was really just for choice ... (#55, 7 May 2001).

As a means of empowerment, self-employment reflected some individuals' response to perceived negative situations confronting them in the labour market. This meant they were forced into self-employment whether or not they would have originally chosen it. In this sense, it was a way out for these people and in practice, was a desirable means of protecting themselves from the abuses of a hostile labour market. For Jeff, self-employment was an alternative allowing him to escape discrimination in his former workplace:

I got a job in the public hospital system in New Zealand when I came back from training. That was fine. But two or three years down the track I was asked to sign an insurance indemnity form that set aside the hospital's liability for any accident if I was involved in any accident - to put me outside the workmen's compensation system. So I said, oh no, I don't think I'm very keen about that. I don't see why I should sign that. So that made me think. And then about a year or so later there was a bit of competition with other staff to go on some postgraduate course and the sighted staff got leave to go to the course ahead of me. So I thought well it's time that I started paddling my own canoe and even if that was going to be hard work I would start to organise my own work environment the way that best suited my talents and capabilities and so that's why I went into private practice. Because I knew that I could orchestrate my work environment to suit my needs (#56, 15 February 2001).

Despite its capacity to liberate blind and visually impaired individuals, self-employment was also restricting for the two interview participants who did not want to be self-employed. Marie, a part-time masseuse, explained that her self-employment was forced on her because she had experienced severe discrimination in her former workplace and had had problems finding jobs. She therefore resorted to working on her own:

I would much rather be working, but it is just that I have never have been able to find employment out there. I mean I'm registered with Workbridge and things like that. So I would much prefer to be working and doing something but it's just that ... I can't find employment in town, I don't really want to be self-employed from home because I don't want strangers coming into my own home environment. It is too much of a danger for me (#57, 21 February 2001).

In the final analysis, though starting out as a response to a negative situation, self-employment led to a sense of personal fulfilment and satisfaction. It promoted some positive aspects of empowerment for participants. For example, despite being a forced alternative, self-employment at the same time provided an opportunity for blind people to exercise control and manage their own affairs in a dignified fashion. According to Jeff, a

self-employed physiotherapist, although he had not originally chosen this path, self-employment afforded him an avenue to achieve his career aspirations in a relatively satisfying way (#56 p.199):

... I found it a reasonably fulfilling career. I'm really in the twilight of my career now and I will finish within the next year or two. It's been hard work but it's been satisfying. Because I've had great contact with people (#58, 15 February 2001).

From these findings it is clear that overall it did not matter why people became involved in self-employment. It was still empowering to them by enabling them both to exercise control and to prevent themselves being disempowered by hostile external forces. Regardless of why they became self-employed, ACT was important as a facilitator of job tasks and creator of opportunities. It facilitated performance of information-dependent or intensive aspects of self-employed participants' work, such as administrative and clerical duties. For some self-employed participants, computers even provided an alternative career. For example, specialist interviewee Jonathan Mosen ran Out of Sight, the company providing technology training to blind ACT users in New Zealand and (via the internet) to people from most English-speaking countries.

Overall self-employment gave participants access to a range of benefits and resources spanning both tangible and intangible aspects of empowerment. It also demonstrated how their response capability enabled them to adapt to their vocational circumstances.

In the next section we look at voluntary work and its contribution to mainly intangible aspects of empowerment.

### **7.2.3 ACT and Voluntary Work**

This form of work is important for two reasons. Firstly it demonstrates the role of ACT - especially the internet - in empowering participants. Secondly it shows how they were enabled to obtain mainly intangible social resources by engaging in unpaid work. In this section we briefly describe its contribution.

In Chapter 6 we saw that the internet enhanced users' participation in a variety of formal and informal groups and settings. It also facilitated their participation in voluntary work

because of the variety of information management benefits it afforded. For Muriel, the president of a national disability NGO and a board member at her local education institution, it helped her to carry out her duties and participate in both her disability and mainstream organisations:

I would say that if I didn't have the technology that I've got now, I certainly wouldn't be doing the amount of work that I'm doing. I probably would only be able to be involved in the Association of Blind Citizens because they would provide information to me on tape or something like that, or large print. Whereas, with some of the other organisations, you really have to advocate quite hard and keep on advocating quite hard to get written information in an accessible format like large print or tape or something. If I was a braille reader I don't know how I'd cope with some of them because they weren't going to provide braille. So what I think is that it certainly has enabled me to perform at a higher level, and to be able to be involved in more activities, than I could say twenty years ago or ten years ago ... (#59, 23 February 2001).

The advantages of ACT that were discussed in depth in Chapter 6 were relevant for people in their voluntary capacities. So for example, email access proved a critical source of information access for individuals in the performance of their voluntary work; it sped up information access and facilitated communication. Nadia noted:

Sometimes I just communicate with the committee members. I can send out a message to the whole of the club. It saves me a lot of time because you don't have to ring them and whatever. Just a couple of clicks of the mouse and your email's away ... (#60, 3 April 2001).

Voluntary work was an important part of participants' lives, according to Table 8 in Chapter 5 (p.142), which demonstrated that 50 percent of participants (43 people) engaged in it, with seven (8.1 percent) working solely in a voluntary capacity. They performed a variety of jobs which gave them access to a range of benefits (Appendix 15 gives a full list of participants' voluntary occupations).

Voluntary work impacted their lives in three main ways. First, it provided a means of empowerment in that they obtained psychological and subjective benefits; second, it provided a valuable source of professional skills and contact; and third, as an indicator of their self-empowerment it offered an avenue for exercising control and influencing decisions over their social circumstances.

ACT and especially the internet aided involvement in voluntary work, helping them to improve their self-esteem and social value. As Dave asserted, it was:

So critical to what I've been able to do and achieve. If I didn't have it I would be nothing. I'd be so far behind in society today (#61, 20 February 2001).

In his view voluntary work offered opportunities for professional and social advancement, with ACT facilitating access to information and presenting him with an equal opportunity to become more involved in his voluntary work at a higher, more influential level:

I suppose if I wanted to, like within the blind supportive area. You know, I could take a position on their International Executive. And technology would assist me to do that, which means that I would be able to communicate, through email and stuff like that. So it means I could, if I chose to do it, take up a position internationally. Just like anyone else I suppose, the internet has opened it up. Because I've got the adaptive technology it means I have got access to the internet, and the same opportunities (#62, 20 February 2001).

Involvement in voluntary work also helped participants to build their self-esteem and confidence. Nadia noted that she did the voluntary work because:

It is the extra help as well as building up your confidence also and your self-worth and that sort of thing ... (#63, 3 April 2001).

Muriel noted that she gained social respect, value and status:

And I mean I've gained a lot of mana through it. In 1995 I received an honour from the Queen ... To get that was recognition for the voluntary work I'd done. So that was cool. Not everybody gets that. I add them to my name ... QSM [Queen's Service Medal] ... quite good when you write something for advocacy (#64, 23 February 2001).

Voluntary work also led to more tangible, material benefits such as access to work opportunities. Four interviewees recalled that they had obtained formal work through their initial voluntary engagements with organisations. Tasha's involvement in creating an organisation to address disability-related issues eventually led to her being hired formally by that same organisation (personal interview, 24 April 2001). In other instances voluntary work allowed potential employers to get to know blind participants, as it was a proactive means of demonstrating work skills. Jerry explained:

And I did a couple of computer courses to see if I liked that sort of carry-on ... Wasn't too fussed but saw the possibilities. I came back to Gisborne and they had dragged the [name of organisation] into the 20th century and they had a little standalone computer down there at the villa and nobody knew how to drive it. And so I started working down there. Basically only as a volunteer, sort of answering the phones and typing off a bit of mail and letters and stuff like that. And it developed from there and they offered me the position of receptionist and administrator. And while I was doing that I got interested in the rehab side of stuff and started working towards the rehab qualifications, looking and learning, so to speak. And the whanau<sup>21</sup> work position became available so I applied for that and got it (#65, 12 April 2001).

Overall it appeared that voluntary work facilitated participation in social groups and processes. This was extremely important as a means of self-empowerment. Community involvement and participation in various organisations and semi-formal groups allowed visually impaired people to share information, transfer skills and offer blindness support to others as part of their empowerment process. Doug reported that voluntary

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<sup>21</sup> Maori term for extended family.

associations of blind people enabled them to access information that would not otherwise have been available. Nick noted that lending blindness support was one of the main reasons for his involvement in organisations relating to blindness interests. For Roz it was her ability to impart her skills to other blind people that encouraged her to participate (personal interviews, 10, 14 and 21 February 2001).

Voluntary work was an important mechanism by which participants were enabled to bridge the gap between personal and social levels of empowerment, because it afforded benefits at the individual and the group level at the same time. The case of Buzzeaxena, a voluntary web page designer, illustrated this point:

I really wanted to learn about web page design. Because I'd decided that I'd wanted to make my own web page before that, and then it just fell into my lap. And I thought this was a good opportunity to do something for a group. It's going to benefit everyone. It benefits me, because I can then use it later on to show people, hey, I can do this and I could also help them as well as it seemed like a good cause. I think it got a little bit addictive actually, because I felt like I was really achieving something. I found gherkin pickling wasn't really doing anything for me (#66, 9 February 2001).

Thus far in the chapter we have considered ACT's effects on three forms of work. Each of these work forms reveals different things about ACT and its effects on participants' lives. Our discussion of paid employment concentrated mainly on ACT's capacity for opening up new areas of employment and increasing the user's attractiveness to potential employers. Our consideration of self-employment showed how it enabled participants to take steps to empower themselves in response to negative circumstances in the job market. The section on voluntary work showed how this enabled them to participate and obtain mainly intangible social resources for empowerment.

The next section will concentrate on how participants used ACT in the workplace and its perceived benefits on their ability to perform in their work.

## 7.3 ACT at Work

Having analysed ACT's impact on different forms of work in the section above, we now look more closely at how it affected participants' performance in the work context. In the previous chapter we noted that ACT was a critical facilitator of information management and task performance. This section relates how these benefits are evident in the work setting. We organise this discussion under three main headings: ACT's purpose and usage, ACT's impact on equality and normality and ACT in management.

### 7.3.1 The Purpose and Usage of ACT

This section considers ACT's purpose and usage. It looks at the type of activities for which participants used it, how the nature of the job affected their dependence on ACT and the extent to which they utilised this technology.

Based on descriptions of participants' voluntary and work activities in the survey (see Appendix 16), these were ranked as "mostly manual", "mostly clerical/administrative" or "mostly service/professional" to give a general idea of the purposes for which ACT was used. Table 17 below shows that participants did not require ACT for mostly manual activities in either their voluntary or paid jobs. Predictably, they used it mainly for clerical/administrative activities.

**Table 17: ACT Use in Different Types of Paid and Voluntary Work Activity**

Activity Type	No. of People using ACT		Percent	
	Paid	Voluntary	Paid	Voluntary
Mostly manual	6	-	9.7	-
Mostly clerical / administrative	31	28	50.0	65.1
Mostly service / professional	25	15	40.3	34.9
Total	62	43	100.0	100.0

These activities covered a variety of clerical, administrative and management functions which occur in everyday businesses and offices all over New Zealand. They included correspondence, budgeting, planning, goods and services provision and sales, accounting and financial activities, research and information access and dissemination, among a wide range of others.

These activities, because of their highly information-intensive nature, required visually impaired people to use ACT to perform them. In the following two sections we explore how the nature of the job task affected ACT use and extent of usage.

### **7.3.1.1 Nature of Work and ACT Usage**

In Chapter 6 we established that blind and visually impaired ACT users needed ACT because of the nature of their impairment. The previous section showed that they used it mostly in information-intensive areas of work. This section briefly explores how the nature of the job determined their dependence on and use of ACT.

Apart from needing ACT as a consequence of impairment, it was clear that the nature of people's jobs also increased their dependence on it. This occurred in a variety of instances:

1. When the job was highly information-dependent. Ben, a rehabilitation worker, explained:

It's highly interactive with computers because it's the collection and manipulation of data. But to achieve that some of that is conducted through one-to-one counselling. So I'd say probably 60-40. Sixty percent reliant on technology and 40 percent is face-to-face counselling stuff or assessing stuff, interviewing and that sort of thing (#67, 7 February 2001).

2. When technology was required for compliance with general demands for high quality, professionally presented work. In this situation individuals were required to use technology to produce work for the general marketplace, regardless of their visual impairment status. For example, Joshua, a self-employed writer, asserted:

The thing is, the work that I'm doing now, no publisher, no television studio, no radio, nobody will actually receive a script of any sort unless it is totally professionally produced and of the highest standard. They won't even receive a script now unless it's on laser printer. It has to be absolutely spot-on (#68, 22 March 2001).

In this context the benefits of ACT in terms of work quality, such as those reported in Chapter 6, were especially important. It must be noted here that the usefulness of ACT was dependent on the type of job activity the individual was performing. Ten people contested the view that ACT was indispensable to their work performance. They highlighted aspects of their work which they considered did not require computer technology to be carried out. These related to manual activities such as massage for physiotherapists, intellectual activities such as thinking or creative work, and human interaction activities such as making telephone calls or conducting interviews.

Nevertheless, ACT was still regarded as important for enabling participants to function in information-sensitive aspects of their work. In the next section we address the extent to which they used it.

### 7.3.1.2 Extent of ACT Usage

Having established that the nature of the task determines whether ACT is used, we now look at the extent of use. We asked participants in the survey to estimate the extent to which their jobs required computer technology usage, in an effort to assess their level of dependence on it.

Participants seemed to be fairly heavy users of technology, as Table 18 below indicates. Firstly, a small minority of people indicated that in either their voluntary or paid work they did not use computer technology. Only seven people out of 67 (10.4 percent) did not use ACT in their paid work and four out of 43 (9.3 percent) did not use it in voluntary work.

**Table 18: Extent of ACT Use in Paid and Voluntary Work**

Extent	No. of People		Percent	
	Paid	Voluntary	Paid	Voluntary
0%	7	4	10.4	9.3
Up to 25%	8	15	11.9	34.9
Up to 50%	17	6	25.4	14.0
Up to 75%	12	7	17.9	16.3
Up to 100%	23	11	34.3	25.6
Total	67	43	100.0	100.0

This finding occurred because some participants worked in both paid and voluntary capacities, but did not necessarily use ACT in both types of work. Thus some people used ACT in their voluntary work but not in their paid jobs, while the reverse was also true.

It can also be seen that participants seemed to use computer technologies for a greater percentage of their paid than their voluntary work.

In addition to the extent of usage we were also interested in where participants used ACT. Table 19 below indicates that in general people in paid employment used computer technology mainly away from home while those who worked in voluntary capacities or were non-workers used it more at home.

**Table 19: Location of ACT Use among Survey Participants**

Location	No. of People			Percent		
	Paid	Voluntary	Non-work	Paid	Voluntary	Non-work
At home	20	24	9	29.9	55.8	66.7
Away from home	47	19	3	70.1	44.2	33.3
Total	67	43	12	100.0	100.0	100.0

These figures for location and extent of ACT use (Table 18, Table 19) were not surprising because of the general trend towards computerisation of workplaces and homes, as well as participants' dependence as a consequence of their impairments.

Having explored usage of ACT, we now move to examine its beneficial impact. We begin first with its contribution to perceived normality and equality with sighted co-workers.

### **7.3.2 Equality and Normality in Work Performance**

In section 7.2.1.3 (p.195) we reported that participants believed that ACT had improved their employability. This was attributed to an increased perception of equality and normality at work. This section explores this in more detail.

Twenty participants thought perceptions of equality and normality were important for enabling them to access work and participate in job processes alongside their sighted counterparts. These perceptions were facilitated by mainstream technological changes

that resulted in some developments with the inherent capacity to empower blind and visually impaired users.

Firstly, mainstream technological change such as the internet created new ways of managing and interacting with information. Secondly, mainstream technological development and industry standards accommodated the development of specialised technologies which facilitated visually impaired users' access to information. Thirdly, specialised technologies were becoming more standardised and integrated with mainstream technology. Fourthly, more accessibility features were being included in mainstream technology to make it easier for blind people to use.

As Ben, a rehabilitation worker in the prison system (#69 below), noted, ACT opened up the possibility of equality for visually impaired users because of its improved information management capabilities and their consequent ability to perform alongside their sighted counterparts:

Well, because of the advancements of computer technology, particularly in my case JAWS software, I'm able to work alongside people who are not disabled in a very challenging area and function equally - which creates equality (#69, 7 February 2001).

Participants explained that ACT enabled them to perform tasks on an equal footing for a number of reasons. Firstly, it facilitated task performance because it gave independent direct access to information (discussed at length in Chapter 6, section 6.2 onwards). This meant that it also facilitated simultaneous access to information, resulting in feelings of equality for seven people. Shawn expressed this:

The benefits have been, keeping me abreast of what's happening - to be able to access information easily, the same as my colleagues. I think that's it. It's been the ability to be equal amongst my peers ... well, what that means is if there's a bloke next door to me or woman [and] she has or he has access to information, then I can access it at the same time. That's what it means. It's equality, or equity rather (#70, 22 February 2001).

Along with ease of access came comparable speed and resulting efficiency in task performance relative to sighted peers. Doug, a fundraising manager, explained this:

You can read it as fast as a sighted person as well, which of course is a big thing, the speed of access is important ... ninety-five percent of the tasks that a sighted person can do, you can do equally as efficiently (#71, 10 February 2001).

Secondly, ACT facilitated users' production of comparable work quality because of increased access to sources of information such as the internet, as Denise explained:

... I now feel as if I am much more equal with my peers and so the work I produce I think is a better quality because I'm able to back it up with things and information that I can get from the internet (#72, 24 April 2001).

Thirdly, it allowed visually impaired users a competitive edge relative to their peers, as they could proactively access information directly from the internet which gave them an advantage in relation to others. Mark noted this:

I think the main benefits to me are that it helps me to be competitive. Technology helps me to keep ahead of others who are not as prepared as I am. It is maintaining that competitive edge that is important to me (#73, 9 February 2001).

This equality question illustrates the intangible aspects of empowerment that ACT generated for study participants, not just in terms of work production but also for their careers. These views were evident in Reggie's and Jeff's remarks. Reggie, a senior manager, reported:

I'm right up there with the best of them. I've got brothers who own businesses, I've got brothers who are principals of colleges, I've got another brother who's a very successful horticultural farmer. I've got a sister who's a very successful marketing person (#74, 28 February 2001).

Jeff, the self-employed physiotherapist on the verge of retirement, reported that:

In relation to my two brothers I've done equally well, perhaps not absolutely brilliant ... pretty well on a par. I'm not outside the family norms, as it were. My elder brother is a building inspector. So he worked as a self-employed carpenter for many years and now he works for the city council as a building inspector. And my younger brother is a manager of a big commercial firm. So he organises work teams on big commercial building sites. So you can see that both those people are practical people. And you know I think my income is probably about level with theirs (#75, 15 February 2001).

ACT also apparently provided visually impaired users with the impetus to access higher positions, as we shall see in the next section.

### **7.3.3 ACT in Management**

This section explores how ACT assisted participants in managerial settings where control and decision-making abilities were important.

Central to our notion of empowerment were decision-making and control, two prerequisites that participants needed to take charge of their circumstances. From their reports in Chapter 6 it was apparent that technology enhanced their ability to exercise control over their personal circumstances through improved information management, participation and response capability. This kind of control may be considered negative because it merely compensated for the limiting effects of impairment (Gerber et al. 1992, 1996). In this section we consider control and decision-making in participants' work settings, since as Gerber et al. (1992, 1996) pointed out, control is critical to their vocational success.

In this regard also ACT was beneficial. It facilitated participants' access to positions of influence and authority in both paid and voluntary work settings. It also enabled them to obtain jobs which put them in greater control of resources and decision-making positions. For instance, this change to management enabled Reggie to fulfil his desire to contribute to his community on a more influential level:

... I wanted to contribute to helping people to make a change in their lives, and in particular Maori people ... Of course this computer technology

came along which gave me a number of options ... And so I chose management because at the end of the day while you could make changes in people's lives, the real changes came about however through the making available of resources. And when you look at who was in control of the resources, it was by and large management. So I decided we needed to be there, you know, to free up resources ... help people to make real changes. So that's one of the reasons why I came into management and I've been there for 15 years. That's it in a nutshell (#76, 28 February 2001).

Reggie worked in an influential position as a senior manager in a large hospital service where he managed a range of counselling, drug, rehabilitation and mental services for Maori people:

The organisational structure, where I fit into it is that I'm the third level from the top. So in other words we have the Chief Executive right at the top, then the next level down is General Managers and then the next line down is Operational Managers and then the fourth level down is Service Managers ... So I have a staff of 60 currently and that is expected to grow to 300 in the next two years (#77, 28 February 2001).

Like Reggie, other participants had also slowly begun to access management and decision-making positions in their various organisations. Nevertheless, this raised some questions as it appeared that though some participants had attained managerial positions, others were dissatisfied with their achievements so far. For instance, specialists such as Thomas Bryan pointed out that blind and visually impaired people appear to be absent from high-level decision-making positions in paid employment:

... There are certainly more people than ever with university degrees that are working in the area either of policy, frontline sort of staff, case managers, those sorts of roles. But there still isn't a great number of blind people, within the Foundation or outside the Foundation, that hold down senior positions (\*I, 20 June 2001).

Thomas Bryan's claim was supported to some extent by our survey results. An analysis of participants' paid occupations (Table 20 below) on the basis of the New Zealand

Standard Classifications of Occupations (Statistics New Zealand 1999) shows that of the 67 people who engaged in paid work, the largest group (44.8 percent) worked mostly in occupations in the category of associate professionals and technicians (see list of paid occupations in Appendix 14). Although these jobs offered them a measure of control, they were not necessarily senior, decision-making positions. A relatively small (but notable) number of people were in the two highest levels of occupation categories, as either legislators, administrators and managers, or professionals.

In contrast, Table 21 below shows that in their voluntary work categories (also derived from the New Zealand Standard Classifications of Occupations) an important minority (48.8 percent) of participants worked at the levels of legislators, administrators and managers (see voluntary job titles in Appendix 15).

**Table 20: Paid Occupational Categories of Survey Participants**

<b>Paid Occupation Categories</b>	<b>No. of People</b>	<b>Percent</b>
Legislators, administrators and managers	13	19.4
Professionals	5	7.5
Technicians and associated professionals	30	44.8
Clerks	8	11.9
Sales and service workers	6	9.0
Agricultural and forestry workers	3	4.5
Elementary occupations	5	7.5

(67 people, multiple responses)

**Table 21: Voluntary Occupational Categories of Survey Participants**

<b>Voluntary Occupation Categories</b>	<b>No. of People</b>	<b>Percent</b>
Legislators, administrators and managers	21	48.8
Professionals	8	18.6
Technicians and associated professionals	8	18.6
Clerks	5	11.6
Sales and service workers	1	2.3
Total	43	100.0

These results imply that participants held more powerful decision-making positions in their voluntary work than in their paid jobs. This may be because participants who reported that they were in executive positions were mainly working in disability-related organisations. Visually impaired people have still not achieved significantly wider

integration into mainstream positions of influence. These conjectures may be explored in future studies.

While we cannot make any definitive statement regarding participants' reservations on this point, we can say that, based on survey results, management positions had become available for some participants. These management positions existed both for those employed by others and for the self-employed. In the next section we look at how ACT helped those in management positions to carry out their managerial duties.

### **7.3.3.1 ACT and Managers' Performance**

ACT was critical to managers' actual performance in a variety of ways. This section relates how they used it to perform their duties.

ACT helped managers to access information easily and directly and so exercise influence over decision-making. In Reggie's case technology allowed him to access information, placing him on an equal footing with his sighted peers:

In my workplace it gives me parity with my sighted colleagues so that I'm not too far away from them and able to participate equally in terms of decision-making, sharing of information, being responsive when in meetings. And it's all those sorts of things that gives me the ability to participate and not be too disadvantaged by not having information readily available. For example, tomorrow morning me and my colleagues and our General Manager will meet ... And so we have to make some very important strategic decisions. Now if I don't have access to the information then I could be disadvantaging my department if I'm not inputting and ensuring that the information from my staff is reflected appropriately or adequately in that forum. I would be disenfranchising them in terms of their having input into major decisions because at the moment I am one of the executive managers of the organisation and it is my responsibility to ensure that staff do have an input via me to those important decision-making forums. So technology has allowed me to do that (#78, 28 February 2001).

By facilitating access to information ACT enabled managers to exercise control over decisions, processes and systems in their work. Marlon asserted that:

... To have the ability to use the hospital's finance system which we've got access to, just keeps you on top of things. So that there's no surprises when each month's reports come in and the boss says why this budget is overspent. You can see trends of what's going on and have explanations ready (#79, 26 February 2001).

ACT played a critical role in facilitating and enabling managers to monitor and control their workers' work quality, according to eleven managers or supervisors. James, a finance manager in charge of a small unit of eight people, found it critical to enable him to work:

I spend probably 80 percent of my day on a computer. I work primarily in two applications: Microsoft Excel, working with budgets for business units and monthly reports against those budgets, costing of new products and services, determining fees [and] any types of money-type projects I would be spending time on. And I also write and have to read a number of documents. So I have to do that in Microsoft Word. So I would be writing monthly reports. I take the minutes and write the minutes for our national IT steering committee in Wellington. So I use Microsoft Word to write up the minutes. I read documents, in relation to that committee meeting. Any initiatives that we are doing tend to be sent to me as documents. And then the third product I use is Microsoft Outlook. We are almost an electronic office. So probably 80 percent of communication is via email and email attachments (#80, 14 February 2001).

He found ACT useful for managing his two teams of workers:

It enables me to work with my staff better. I can read what they produce by myself, look at what they have done for myself and provide suggestions (#81, 14 February 2001).

James encountered no difficulty in managing staff as he successfully used ACT to access information and to control their work quality:

It doesn't seem to take very long for the people that come to work for me to adjust to the fact that I don't see that good. They get used to working for me in certain ways. I might ask them to read something to me rather than peering at it myself. If they were bringing some number to me, they know to email me rather than giving me hard copies. Other than that it seems to be all right (#82, 14 February 2001).

By having his workers use ACT and read to him, James had successfully elicited accommodation from his workplace to suit his impairment. ACT facilitated his efforts by presenting him with ready media that made it easier for sighted workers to accommodate his needs.

This was important because accommodation by colleagues and people in positions junior to blind individuals is also a vital element for these individuals to perform their work. This accommodation may be involuntary or voluntary. Involuntary accommodation occurs when organisational practice fosters use of assistive technologies such as email and electronic print, which are very useful to blind and visually impaired people.

Voluntary accommodation, on the other hand, requires colleagues and co-workers to make adjustments to facilitate the needs of the visually impaired worker. In situations where the visually impaired worker held a position senior to sighted co-workers, this was often a requirement for those workers reporting to that individual. For example, James (#80, #81 and #82 above) noted that his staff had learnt to make the necessary adjustments to enable him to access their work.

James' case was noteworthy because, as we will see in the next chapter, although ACT facilitated accommodation to meet visually impaired workers' needs, sometimes organisations and co-workers were unwilling to maximise this capacity. In these instances the blind workers' relationship to power became important for enabling them to minimise the resulting hardships.

However, as this chapter focuses on the positive aspects of ACT usage we note that, as in paid employment, computer technology in general and particularly email have been critical factors in visually impaired people's community involvement through voluntary work. For example, Muriel, a senior executive of a national NGO, found email facilitated

task performance by functioning as a long-distance supervision tool. Other general features of computer technology were also helpful in this role:

So really, during the meetings I have got to have access to the agenda in an accessible format [because] while I can read large print, it depends on the lighting of the room if it is successful or not. So I actually type out the agenda and make notes so that I know to keep myself and everybody on track during the meetings. We [are] also coordinating the different working groups to ensure that they are actually happening and a lot of work is done by email. And so you use your computer a lot for that. I've just finished a CEO, Chief Executive Officer's, performance appraisal. So I'm having to do a lot of new performance appraisals indicators to provide for them next year's annual approval for his job. And this really has to be done in a Windows situation where you've got columns so that you can easily set it up for someone who's sighted that can go along and evaluate their performance at the end of the year (#83, 23 February 2001).

From participants' comments it was evident that ACT was being successfully used in work settings to enhance performance. It seemed to have had a positive impact on tangible areas such as information management, generating a range of benefits for users that allowed them to perform. These benefits were also important in managerial contexts, as some participants had successfully managed to harness ACT's benefits to enable them to perform in those roles.

While these were generally obvious, observable benefits, we were also interested in the more subjective aspects of vocational empowerment. Participants alluded to these benefits in their perceptions of equality cited above. We also argued that intangible aspects of empowerment must be achieved if they were to be empowered (Chapter 1).

We now devote the penultimate section of this chapter to the question of participants' satisfaction with their vocational situations.

## **7.4 ACT, Work and Vocational Satisfaction**

This section examines the question of empowerment through ACT's impact on job satisfaction. Crucial to the issue of vocational empowerment is participants' own perception of their vocational situations, since visually impaired people have been considered mainly restricted to unsatisfactory work and vocational situations (Deshen 1990).

ACT appeared to have generally increased participants' satisfaction with their work quality and performance, as shown in Table 11 and Table 12 (pp.162, 163) in Chapter 6. These findings were supported by those from interviews, where ACT also appeared to have had a generally positive impact on overall vocational satisfaction in a variety of ways. These included independent information access, access to increased information, facilitation of work tasks, independence in work performance, increased speed and control of work quality. The quotations below illustrate how these benefits affected participants.

Among intangible reasons for satisfaction, three people identified increased self-confidence and equality generated by simultaneous access to information, control of work quality and equality in work performance, as articulated by Doug:

I think you are always comparing yourself with your peers, people doing the equivalent job, whether it be around the country or in the same office, and I think people with a disability can quite easily have fingers pointed at them in certain things - either justly or unjustly. I think with computer technology there are very, very few [people who] now can say, now look, he didn't perform well in that, because he couldn't see that or he couldn't access that. The instances of that are just so rare now (#84, 10 February 2001).

For some people it was the elimination of the negative emotions and conditions attending visual impairment in the absence of ACT that enhanced their satisfaction. Using ACT relieved participants from annoyance, frustration and tedium in work production, which in turn increased six participants' satisfaction with work production and performance. Muriel explained this:

... That's because my work presentation is higher. And because I actually enjoy using the computer better than typing. It's more rewarding. It's something you can enjoy doing and not just a laborious task - which typing used to be (#85, 23 February 2001).

For Muriel, typing had been difficult. Because of her long fingers, she had been prone to errors using typewriters (#85 above). Computers thus relieved the tedium of having to re-type work and increased her level of enjoyment of work processes.

For three others it was involvement in wider social spheres such as voluntary work that gave them satisfaction. As noted above, ACT helped them to become involved in their wider communities. For Jack, a physiotherapist, though it did not help so much in his work, it helped in his voluntary capacity as chairman of a local mainstream school board:

The work side is not applicable ... Of course in the voluntary capacity it has, yes, made it vastly better (#86, 20 March 2001).

In this capacity he noted that he obtained satisfaction from being able to perform:

I've done three years as chairperson, one year before that just on the board and it's probably been one of the more satisfying things I've ever done, really ... Well, I've been a physio for 22, 23 years. And so one does get, not stale, but you know what I mean. And so to do something like this was a completely new challenge, a completely new set of regulations, standards, rules and philosophies, a different group of people ... I did a whole set of values that they had. I've just got into it, boots and all. I loved it. And I've had that major thing where how often is a blind person not the contributor but the receiver? Here it's been an essential contribution and it's been great to be able to do that (#87, 20 March 2001).

For two users ACT provided greater fulfilment by facilitating access to information. Reggie reported:

... It's just sort of opened up all sorts of possibilities. It's just sort of brought the world down into my ears. It's just made my whole life much more fulfilling ... There seems to me that there are lots of gaps in one's life

because one doesn't have proper access. Even if one decides to sit down and watch or listen to TV there are many aspects of that you miss out on. And so having access to the computer, having access to the printed word via the computer, having access to the internet is just amazing (#88, 28 February 2001).

This access to information in turn offered a perceived avenue for growth. Nadia explained:

I can grow with it. As long as I have access to it and access to learn it I can grow with it ... I can run with the technology and learn and grow with it (#89, 3 April 2001).

It is worth noting that, in contrast to those who expressed definite agreement that computer technology had contributed to increased levels of vocational satisfaction, three participants disagreed. In one case this was because of the person's own attributes and attitudes. For the remaining two, inappropriate technology and poor performance mitigated any satisfaction they felt.

Other users expressed uncertainty and mixed feelings about the effects of computer technology on their work. For example, while agreeing that ACT increased his level of satisfaction with his work, Shawn clarified by saying that it was not the technology itself, but the fact that it facilitated his work, that was responsible for his increased satisfaction. Nick, an IT manager, pointed out that he was unable to distinguish the effects of computers on his job satisfaction level, as he worked with computers and his job depended on their existence (personal interviews, 22 and 14 February 2001).

These findings on vocational satisfaction were not surprising. They confirmed the findings of others such as Roulstone (1998:65), who discovered that 57 percent of people with impairments in his study experienced increased satisfaction after using new technology.

It should be noted that in general participants were happy with their vocational situations. ACT's contribution to increased satisfaction should thus be viewed against this backdrop. We discuss this situation in the next section.

### 7.4.1 Satisfaction and Vocational Situation

Overall, participants were largely satisfied with their vocational situations. Fifty of the 66 paid workers (75.8 percent) who responded to survey questions about their job satisfaction replied positively. The overwhelming majority of the 43 people (42, or 97.7 percent) who answered this question for their voluntary work indicated satisfaction. Of those who did not work nine (75 percent) were satisfied with their status as non-workers.

Participants offered a variety of explanations (Table 22 below) for their satisfaction with both paid and voluntary work. The largest group of people in both paid and voluntary work were satisfied because they felt they were making a valuable contribution to the community.

**Table 22: Reasons for Paid and Voluntary Job Satisfaction**

Reasons for Satisfaction	No. of People		Percent	
	Paid	Voluntary	Paid	Voluntary
Valuable / community contribution	23	33	6.0	78.6
Favourable conditions of work	7	2	14.0	4.8
Remuneration / economic self-sufficiency	2	-	4.0	-
Confidence and self-esteem	4	5	8.0	11.9
Job of preference	9	-	18.0	-
Fulfilling job activities	21		42.0	
Alternative temporary occupation	-	3	-	7.1

(50 paid workers, 42 voluntary workers)

Non-workers offered upskilling as their main reason for satisfaction with their vocational situation, with five (55.6 percent) of the nine people who were satisfied with their non-work status noting that they were upskilling for better employment. Two (22.2 percent) noted that their activities were fulfilling and two (22.2 percent) reported that they preferred not to work.

These findings for paid work were surprising and contradicted assertions in the literature that the majority of blind and visually impaired people often had unsatisfactory jobs and were generally underemployed (Jeppsson-Grassman 1989, Deshen 1990, Baglihole 1997). Results for voluntary work were not surprising as because of its nature people can exercise more choice over involvement. If they were dissatisfied, for example, they

would have greater freedom to relinquish a voluntary position than they would a paid position. The majority of non-workers were students and were mainly satisfied with their status because it was largely their choice.

It must be noted however, that there was a degree of underemployment among participants, as demonstrated by the reasons given for job dissatisfaction in Table 23 below. Most who were dissatisfied (10 people or 62.5 percent) explained that underutilisation of skills and lack of challenge were the major sources of dissatisfaction with their paid jobs. The only person who reported dissatisfaction with a voluntary job noted that it was only a temporary occupation until a more permanent one was found. Similarly, of the three people who were dissatisfied with their non-work status, two students reported that studying was an alternative occupation for them until they could find paid work and the remaining individual wanted paid employment.

**Table 23: Reasons for Paid Job Dissatisfaction**

<b>Reasons</b>	<b>No. of People</b>	<b>Percent</b>
Unfavourable working conditions	3	18.8
Insufficient remuneration	1	6.3
Underutilisation of skills and lack of challenge / stimulation	10	62.5
Unsure	2	12.6
Total	16	100.0

Satisfaction status overall indicated some level of empowerment, as many participants expressed ideas which implied choice, preference and control over the current state of their relationship to work and the job market.

We conclude this chapter in the next section with a brief discussion of the findings.

## **7.5 Discussion and Conclusion**

This chapter was concerned with ACT and work. We chose to continue the optimistic discussion of ACT's development, exploring its impact on participants' vocational empowerment. This position was to some extent justified, despite the criticisms levelled by pessimistic schools of thought. As the optimists argued, ACT has in fact been a crucial facilitator of access to resources and increased participation in development processes, in this case work.

The chapter demonstrated how ACT affected three important aspects of empowerment for study participants: access to resources derived from working, access to intangible resources and potential for equalising and normalising in work settings and beyond. The remainder of this discussion looks at these three issues in turn.

Work, as we noted before, is an important determinant of personal empowerment for visually impaired people. It provides them with access to a range of benefits and resources not easily available from other sources. From the findings above it is clear that to some extent ACT had begun to facilitate access to both material and non-material resources derived from the various forms of work in which our participants engaged. These forms of work were paid employment, self-employment and voluntary work.

In paid employment ACT granted them a wide range of benefits, critical among these being choice of employment opportunities and access to these opportunities. In New Zealand, as in other OECD countries such as France, Germany and Japan (Scadden 1992, Okada and Yatougo 1992), ACT increased opportunities for blind and visually impaired people. It appeared to increase work opportunities through transformation of the New Zealand employment landscape. On a general level, trends in work opportunities have seen the closure of traditional occupations and a shift to more highly-skilled information-intensive occupations which appear to have broadened visually impaired people's own perceived and actual work capabilities.

These opportunities and increased work capabilities were important because they implied a long-term potential to access resources that were formerly unavailable or provided only in limited measure by the state or the RNZFB. They also implied access to intangible resources such as confidence and participation which were either absent or were very difficult for these formal institutional structures to provide.

ACT made these resources available for instance to participants who engaged in self-employment, both as a response to difficulties in the labour market and as a personal choice. It enabled them to earn an income, as well as allowing them increased confidence, autonomy and control in conducting their affairs. Such benefits were key building blocks for personal empowerment which should enable them to take control of their lives.

However, self-employment was not a necessarily desirable situation for those people who were forced into it against their will, as Marie (#57 p.199) demonstrated. In these circumstances participants did not necessarily regard self-employment as empowering and it should not be seen as the only complete or permanent cure for the vocational problems of people with impairments. Nevertheless, in the absence of other desirable alternatives it permitted them continued access to resources. This access to resources we have already argued to be critical to empowerment at both individual and group levels (see Chapter 1).

Of special importance to participants was their access to the intangible resources that ACT and work involvement allowed. Although in the discussion of development mainstream approaches often focus on the more tangible, material aspects of resource provision such as income and healthcare, it was clear that the intangible aspects of empowerment were important to participants. From their comments on perceptions of equality and normality, it was apparent that ACT had impacted them personally and psychologically as well as materially. From reasons given for vocational satisfaction and dissatisfaction it was evident that personal and psychological factors were important contributors to their satisfaction status. This was true in interviews as well.

The importance of intangible aspects of empowerment to participants can perhaps be explained by the fact that, due to well-established welfare provision, they were generally receiving blind invalids' benefits and other services that could cover their basic material needs (see Appendix 17 for a more detailed discussion). Accordingly they saw the intangible benefits of work, such as making a valuable contribution to their community, as more important than tangible rewards such as income.

Overall, positive findings regarding these personal and psychological indicators point to visually impaired people being subjectively vocationally empowered as well as having potential for continued empowerment. ACT allowed access to a range of personal resources such as confidence and self-esteem (Nadia, #63 p.202). In a development context these were important considerations for empowerment to take place (Bandura 1995).

Access to such personal resources also stimulated social involvement (Nadia, #63 p.202), which in turn became another strategy for further empowerment. Social involvement was both a means and an indicator of empowerment among participants. It can be seen as an indicator of empowerment in that they began, through means such as the internet, to increase their level of social involvement (as seen in Chapter 6). They also branched out into new areas of education. This chapter showed how participants had become involved in different forms of work.

As a strategy for empowerment, social involvement, such as in voluntary work, allowed participants a level of access to social resources spanning tangible and intangible aspects of empowerment. For example, participants accessed social resources in the form of status, as Muriel (#64 p.203) reported. In her case this allowed her to tap into resources which were allocated as part of New Zealand customary practice. Making reference to the Queen's Service Medal she had been awarded added to her credibility in advocacy work.

Muriel accessed social resources in the form of status that enabled her to wield ideological power (Poggi 2001:18). This kind of power would enable her to access more social favour from society. This increased social favour can perhaps explain why voluntary work can also lead to paid work.

Access to each of the three forms of work - paid employment, self-employment and voluntary work - represented a level of vocational empowerment for participants. For our analytical purposes each was treated separately and represented a distinct kind of strategy and access to resources, which augurs well for participants' long-term empowerment. In reality however these strategies are interchangeable. For instance, while we focused on increased opportunities for paid employment, ACT also increased opportunities for participants to engage in voluntary work. Paid employment, like voluntary work, contributed to intangible aspects of empowerment, as seen in their satisfaction levels with their vocational situations, while self-employment offered similar opportunities to both other forms of work.

Access to resources made possible by ACT was undoubtedly especially important to participants because of disadvantages encountered as a result of their visual impairment.

Arguably their need for resources was not particularly unique, as this is a common feature of marginalised groups. What distinguished their experiences from others' was the equalising and normalising resource that ACT represented.

This particular feature of ACT was graphically illustrated when we considered its use in the work context. It appeared critical for allowing the majority of participants to perform in each of the three work forms described above. ACT promoted perceptions of equality and normality by enhancing their ability to perform on a level equal with their sighted counterparts. Along with personal performance in job tasks, perceptions of equality and normality were important for improving participants' employability by minimising some of the attitudinal barriers potentially encountered in the labour market.

This finding was not unusual, as authors had discovered in studies in the United States and Britain (e.g. Levy et al. 1993, Roulstone 1998) that potential employers were willing to hire competent well-trained people with impairments (as discussed in Chapter 3). This was because ACT allowed them to function in ways that altered employers' perceptions of their capabilities. In this sense then ACT was also critical because people with visual impairment sometimes met resistance at the point of entry to the workplace, through stigma, ignorance and prejudice (see further details in Chapter 8).

Perceptions of equality and normality also figured in the managerial context (see Reggie, #78 p.214), giving participants confidence to perform in that area. Participants had begun to attain management positions in their various organisations. This finding meant that they were reaching higher decision-making positions, albeit slowly.

These kinds of positions were themselves important because they increased access to and control of decisions and resources. This in turn was important for enabling participants to influence decisions and processes that affected their work environments and their lives (Reggie, #76 p.211). In our concept of empowerment this also meant that participants could reasonably be expected to begin to exercise control over factors which could perpetuate their further empowerment.

This question of ACT's equalising and normalising benefits raised another interesting question for contemplating empowerment in the broader theoretical context. Participants, probably unaware of this debate, defined their empowerment in relative

terms. In other words, their expressions of equality and normality implied that they saw their empowerment as concerning their situation relative to their sighted peers, rather than in absolute terms.

This is perfectly understandable given the complex and sometimes subjective nature of empowerment. As we noted in the previous chapter, impairment often added another dimension to people's disempowerment relative to their sighted counterparts in whichever social contexts they inhabited. Impairment complicated any kind of personal and social activity individuals engaged in. Consequently, it also compounded their problems in relation to work and other major development processes. The equalising and normalising benefit of ACT was thus crucial to narrow the gap between them and their sighted peers.

The idea of relative empowerment is interesting and has implications for the wider theoretical debate on empowerment. Much development studies discussion has centred on ideas of absolute empowerment. This is understandable as the debate largely aims to address circumstances in developing countries, where many problems revolve around situations of absolute deprivation and marginalisation. Our discussion takes place in a developed country context where these problems do not necessarily assume such importance as they have been largely eradicated. Consequently the issues for study participants no longer concern absolutes of empowerment such as access to basic resources, but equity and/or equality with their peers.

This discussion is developed further in Chapter 9, but at present we note that, as in Chapter 6, these positive findings generally appear to justify reliance on old medical and development models to resolve the problems of impairment.

Thus far we have discovered in these two chapters that ACT improved users' information management abilities. Improvement in information management led to spin-off benefits such as communication which facilitated their social involvement and participation. Participation and improved management of information positively impacted their response capability, or their ability to respond to change in their external environments. Participants demonstrated this improvement in accessing ACT training

and in subsequent use of ACT to improve their education and skills. These three benefits when applied to the work context led to their increased access to resources.

Study participants were able to commence the process of empowerment by accessing work and availing themselves of a range of benefits derived from working and from social involvement. Logically therefore, work of all three forms identified above should eventually result in long-term empowerment of participants, such that they no longer rely on state or NGO provision for support. They should also be able to maximise intangible personal and social resources to eventually improve their situations. These findings justify, for instance, the neoliberalist argument for providing ACT to ensure that marginalised people are enabled to engage in paid work.

However, as we intimated in the previous chapter, this is not the complete picture. When viewed from an alternative development or a more critical, pessimistic framework, mainstream utilitarian approaches towards deployment and use of ACT seem less effective because of the problems they generate. These problems can significantly undermine some of the benefits of ACT development for participants.

The next chapter explores some of these issues as we consider in some detail the limitations to empowerment through ACT.

## **CHAPTER 8: LIMITATIONS TO VOCATIONAL EMPOWERMENT THROUGH ACT**

### **8.1 Introduction**

So far we have been concerned with optimistic discussions of ACT's development, concentrating exclusively on its beneficial impact on study participants. As the two previous chapters showed, ACT spawned a range of benefits for participants in their personal and social contexts. It improved users' information management abilities. Improvement in information management led to spin-off benefits such as communication, which facilitated their social involvement and participation. Participation and improved management of information improved their response capability, or their ability to respond to changes in their external vocational environments. These three benefits, when applied to the work context, led to their increased access to another set of personal and social, tangible and intangible resources.

In order to describe these benefits we ignored the existence of problems and limitations, also assuming that participants' access to, interaction with and use of ACT was guaranteed and unproblematic. Our exclusive focus on benefits was necessary to demonstrate ACT's potential for empowerment, in keeping with the optimistic framework driving that part of the thesis. However, in reality participants experienced a range of problems in accessing ACT and obtaining flow-on benefits in their vocational settings.

While our adoption of the personal deterministic approach to technological change was useful for discussing ACT's beneficial effects, it largely excluded the wider social context in which this contribution was being studied. The context in which ACT is deployed and used is critical for understanding the barriers to its potential for empowerment and for doing justice to our investigation of ACT and empowerment.

As writers such as Law (1991a) and Sheldon (2001) have argued, discussion of ACT and empowerment cannot be divorced from the social context in which it is used because technological change does not evolve from the impetus of an inner, independent scientific or technical logic, but is shaped by social and historical processes that determine its

direction. Similarly, social model writers such as Oliver (1990, 1996b) have noted that the social environment in which the impaired person operates restricts much of the potential for empowerment.

From these authors' perspectives, ACT's development, deployment, use and effectiveness by and for blind and other marginalised groups, are set against a backdrop of particular sets of social decisions and responses. In this study, the main social response inhibitor of ACT's potential manifested in patterns of technical change and management of the change process. Current technological change processes, although obviously beneficial, paradoxically sometimes also created more hardships for users. This was because ACT's actual potential was affected by other issues such as its pace of development, its form (in this case development of dual solutions), the kinds of institutional structures in which it emerged, their responses and attitudes to its existence and the impact of these on the chances of blind people to access vocational opportunities in New Zealand.

This chapter focuses on three areas in which barriers still prevented visually impaired people from maximising ACT's potential for empowerment. It looks at hindrances to accessing ACT for vocational empowerment (section 8.2), factors impairing interaction with ACT (section 8.3) and restrictions to maximising vocational opportunities presented by ACT (section 8.4). It concludes the discussion in section 8.5.

## **8.2 Hindrances to Accessing ACT for Vocational Empowerment**

The previous two chapters were concerned with outlining ACT's benefits to participants. This analysis ignored the realities of problems encountered both in accessing and maximising ACT. Having assumed that access to resources was a two-stage process consisting first of access to ACT and then maximisation of benefits flowing from its use, we concentrated exclusively on the second stage in order to contemplate ACT's empowering potential.

However, in order to obtain the benefits that have so far occupied our attention, visually impaired people must first have access to ACT - or the potential empowering and

normalising resources that it represents. This section focuses on the question of access to ACT, the first stage of resource access.

Participants reported a range of hindrances such as the RNZFB, funding and finance, the market structure and others, which increased their difficulties in accessing ACT. The discussion begins with an exploration of financial constraints below.

### **8.2.1 Funding and Financial Constraints**

Funding of ACT was an important question for participants. Given the often negative economic circumstances of people with visual impairments, they were likely to face economic problems when required to access ACT.

In New Zealand in the 1980s, the state, by way of its various funding programmes (Chapter 4 section 4.3.1, p.91), had permitted access to funding through a range of state-sponsored agencies and initiatives. This funding, though not necessarily targeted at ACT, could be used to help eligible applicants. However, as these provisions were general, inadvertent and only a small part of the state's welfare apparatus, they were subject to the major philosophies and changes that affected the state.

This created unforeseen problems for visually impaired people. For instance, the neoliberal organisation of welfare provision led among other things to the emergence of quasi market-oriented organisations such as Workbridge and the development of funding criteria to ensure appropriate targeting of funding, which created barriers of cost and affordability for study participants in accessing ACT.

The following section briefly explores two such issues, funding criteria and costs of technology.

#### **8.2.1.1 Funding Criteria as a Barrier**

This section relates how the first of these barriers - funding criteria - affected participants' access to ACT. In Chapter 4 we explained that under state welfare provision, visually impaired people who were either in work or training, or were about to enter such situations, could access funding from a range of state-sponsored sources. These sources had adopted these work or training-related criteria, probably to manage funding and ensure that it was allotted to deserving recipients.

This situation unfortunately resulted in an inequitable state of affairs in which people who were in training or working (the majority of participants in this study) were reasonably enabled to access ACT, while the funding criteria excluded the most vulnerable people (a minority of study participants). If people did not meet the work or education criteria there was very little funding available.

This gave rise to a “catch-22”<sup>22</sup> situation in which people required funding to help them get to the verge of work or employment, but needed to first be on the verge of work or employment before they could access the funding. These practices led to a gap in the system, where those people who were ineligible for funding were not catered for. Carmen Taylor, a vocational employment advisor with the RNZFB, explained:

So there is that group missing, you know, actively seeking work, but can't find a job yet and aren't doing a training course. So therefore [they] may come in for training to do the computer course, but they can't access the computer afterwards (\*J, 19 February 2001).

Application of funding criteria meant that more vulnerable visually impaired people, such as those who were unemployed, were prevented from accessing technology that would assist their attempts to get into employment. For example, Morris Sloane argued that:

Where it is a bit difficult at the moment is that there is a lot of people who are genuinely trying to do something to get some experience so they can be employable, but the funding isn't there for those people (\*K, 23 April 2001).

This problem was particularly acute because participants required ACT to access work opportunities. Dave reported that he required funding to access equipment to enable him to engage in a work trial, but was not funded by Workbridge until he was actually involved in the work trial process. This meant that he had to find his own funding:

Workbridge has cost me money, more money than I have actually got out of them ... I had to buy a computer for my work trial. So I bought the

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<sup>22</sup> Popularised by the World War II novel of the same title by Joseph Heller, which contains such paradoxical or contradictory situations.

computer and they were going to reimburse me once I started my work trial. Of course they pooped up on the work trial, the work trial never started, and I never got reimbursed for my computer ... (#90, 20 February 2001).

Sometimes in work trials participants had to convert information to digital format to enable them to access potential employers' systems. In these situations they required specialised technology - obviously unavailable in mainstream settings - to enable them to commence the work trial.

While Dave did manage to fund his own computer technology, in some instances more disadvantaged participants were unable to do this for lack of financial resources. This affected their access to educational opportunities, employment and ACT.

In terms of education, lack of finance or access to funding prevented three participants (two males and one female) from completing their academic goals. One male and one female were unemployed at the time of the study, while the other male was working. All three halted midway through their studies because they could not afford to finish.

Inadequate finances also prevented two people (one male, one female) from accessing and maximising job opportunities, because of their inability to obtain required technology. The male, who could not afford to purchase necessary equipment to find work in the music industry, was unemployed. His female counterpart, an unwillingly self-employed masseuse, could not afford to upgrade her equipment so as to maintain her technological skills and access the internet.

The problem of technology cost was not only felt by first-time users who had not qualified for state-sponsored funding, but as we shall see in the next section, was becoming a problem for some participants who had already accessed ACT.

#### **8.2.1.2 Cost as a Barrier**

This section explores a second aspect of financial constraints to technology access. Although the cost of specialised technology had decreased over the years, visually impaired people were still affected by it. Although our participants had mostly accessed ACT, rapid technological change continued to impose additional costs on them.

Survey results revealed that 48 people (65.8 percent of the 86 participants) needed some form of technology or related services. The most commonly cited needs (Table 24 below) were keeping pace with changes in both mainstream and specialised technology.

**Table 24: Types of Technologies or Services Needed**

<b>Need Categories</b>	<b>No. of People</b>	<b>Percent</b>
Specialised software and devices	24	40.7
New and upgraded mainstream hardware and software	24	40.7
Internet and email services	5	8.5
Other	4	6.8

(48 people, multiple responses)

Those who indicated some kind of need for technology or related services were asked why they did not have this technology. Their responses, shown in Table 25 below, indicate that the most important reason was cost.

**Table 25: Reasons for Lack of Technology or Services**

<b>Reasons for Lack</b>	<b>No. of People</b>	<b>Percent</b>
Cost / affordability	18	37.5
Not urgent	9	18.8
Lack of information	8	16.7

(48 people, multiple responses; table abridged)

The findings in Table 24 and Table 25 are not surprising. While cost was not initially a barrier to technology access, participants were often exposed to the cost of keeping abreast of technological change. Martine Abel, a communications instructor with the RNZFB, noted:

... Technology moves ahead faster than people can keep up and than they can afford. You can set someone up with speech or whatever, next year there's new stuff. At some stage people are always lagging behind and if they work or study you can get funds for them but if you have a personal system, you may have to fork out a lot of money just to have new technology (\*L, 9 February 2001).

This posed an additional cost for blind and visually impaired individuals, as often agencies were unable to fund upgrades and they could not afford them on their own. This in turn left them with outdated equipment, since they could not afford new technology and, having received funding once, were unlikely to be given priority attention again. This explains why, in Table 24 above, so many participants reported a need for upgraded technology. This was particularly true for high technology equipment. Martine Abel continued to explain:

If they are retired and they just want CCTVs then it's very rewarding because they can use the same machine for eight to ten years. And they are happy and that side of it is good ... low tech stuff is very durable, you can say to someone, I've got this talking clock, I've got this tape recorder and it goes. But the more high tech you get the more risky it is in a way (\*M, 9 February 2001).

Participants were relatively powerless in the face of technology change-induced costs, which often dictated modifications and upgrades in specialised technology. This meant that they were required to depend largely on the support and structure of funding sources available.

We now look at some barriers to ACT use and access arising from organisational and institutional structures.

## **8.2.2 Market Structure as a Barrier**

Having explored the questions of funding and cost of specialised and mainstream technology, we now consider how interaction with specialised technology market structures and organisations created barriers to ACT access for study participants. This section concentrates on three areas: retrofitting and choice of technology, limited suppliers of ACT in the technology market and the small size of the specialised technology market.

### **8.2.2.1 Retrofitting and Technology Choice**

This section deals with the first of these market-related constraints. As noted earlier in this thesis (Chapters 2 and 3), specialised or adaptive technologies had to be created in

response to mainstream technological developments, in other words, retrofitted to enable blind users to access the mainstream technology. While specialised technologies have by and large been extremely beneficial, they have themselves generated problems because of their nature as market-driven solutions.

As market-driven solutions these technologies are linked to major industry leaders, making them vulnerable to the practices of dominant companies and sometimes reducing users' technological choices. Specialised technologies are linked to mainstream industry standard technologies such as those produced by Microsoft, so that their development, functions and types are largely determined by industry standards. Mastery of Windows, especially Microsoft Windows, determines the extent to which visually impaired people can be successfully integrated into employment because use of Windows is widespread among businesses and offices in New Zealand.

While access to the Windows environment was essential for participants in work settings, specialised technology's exclusive alliance with the Windows environment restricted the choice of technology systems they could access. Although other operating systems exist, such as Unix or Macintosh (see Appendix 3 for a list of operating systems used), these were not common alternatives among participants. Those who were aware of them believed that they were not particularly viable alternatives because of their technical nature (especially Unix), relative lack of popularity and the absence of specialised software to make them accessible to visually impaired users.

In contrast, industry standard programmes such as Microsoft's products facilitated or accommodated the adjustments required to permit specialised programmes to run. Adaptive software developers were restricted to these industry standards since alternative technology providers such as Macintosh and others did not facilitate the development of specialised software. Morris Sloane explained:

The Microsoft products have got the best support in terms of running adaptive software ... they have actually put a lot of what we call "hooks" into the software that makes it easier for people writing screen-reading software like JAWS or Window-Eyes or outSPOKEN so that they can interpret what's happening on the screen and read it. So those programmes

wouldn't exist if it wasn't for the background foundation that Microsoft has put into their products. I mean, I think it's just because Microsoft is by far the dominant computing system in business and things and that's why the most effort has gone into supporting their products. There doesn't seem to be nearly as much done for the Macintosh range (\*N, 23 April 2001).

Limitations on choice were also exacerbated by the limited number of technology suppliers. This problem is discussed in the next section.

### **8.2.2.2 Limited Suppliers**

This section deals with the second of the three main market-related impediments to fulfilling technology access for visually impaired people. In Chapters 3 and 4 (sections 3.2.2, p.61; 4.2.1, p.87; 4.6, p.106) we described how specialised technology manufacturers and distributors had been helping to empower blind New Zealanders by creating and/or distributing specialised technologies in the technology market.

Like the general New Zealand population, blind and visually impaired people could access mainstream technology from general marketplaces and vending sources around New Zealand. However, for specialised or adaptive technologies they were restricted to three sources in that market - Pulse Data International, Zabonne and overseas companies located in the United States and Australia.

In contrast to their empowering role described earlier, we now look at the negative aspects of the current limited number of technology suppliers in the New Zealand market. In the first place, because they were so few they restricted the choice of technology available to visually impaired people. According to interview participants such as Brian, this meant that blind consumers were receiving products which they were not sure were appropriate for their needs:

Well there's not really a lot of choice here. It's because New Zealand is geographically isolated. You tend to be reasonably restricted to whatever supplier might be working in New Zealand ... New Zealand mainly deals with Pulse Data International, so you tend to primarily only get access to their products. So you don't always know whether you are getting the right

products for you ... You don't always have the widest available choice, but you get a choice. Beggars can't be choosers (#91, 21 April 2001).

Secondly, the limited number of specialised technology suppliers (and consequent restricted choice) made visually impaired users dependent, relatively powerless to influence decisions and vulnerable to proprietary and monopolistic practices. For instance, participants in this study raised the issue of authorisation keys for JAWS as a source of frustration. The technology manufacturer used authorisation keys as a control mechanism to restrict JAWS software distribution. This however exposed visually impaired users to problems such as incorrect assignment of JAWS keys, among a range of others.

When authorisation keys were initially introduced, blind and visually impaired consumers attempted to resist this by refusing to purchase the product. However, due to lack of variety and choice in speech software, they resorted to complying with manufacturers' decisions, as Morris Sloane reported:

Well, what Henter-Joyce has done with JAWS is that they basically have a policy of people paying for upgrades. And they don't let you skip upgrades. So if your version needs upgrading they charge you for the in-between version, so if you are going from 3.4 to 3.7 you still pay for the intermediate versions. And the whole thing of the authorisation disk is tied into making sure that happens. The disk that goes with the upgrade is actually like a key that says, this person is authorised to use this upgrade, in other words they've paid for it. In other words they control that. They are one of the first companies that have done that in the industry ... It was interesting when we first started to sell the programme in New Zealand, there was quite a thing about paying for the upgrades ... The customer has bought into the fact that they mightn't like it, but whereas in the older days they used to complain and not buy it, they tend to buy it (\*O, 23 April 2001).

The limited number of specialised technology suppliers may be explained by the New Zealand market's small size. The next section is devoted to this question as we explore the third market-related barrier to accessing ACT.

### **8.2.2.3 Small Market Size**

This section explains how the New Zealand market size contributes to limiting the supply of specialised technology for blind users.

Suppliers argued that the New Zealand market's small size meant products could not be mass-produced and were thus not cost-effective to produce on a large scale. It also meant that people would be dependent on products made overseas. These overseas suppliers did not find New Zealand a particularly attractive market, which in turn led to a narrow variety of products being available here. According to Ivan Pivac, this situation confronted both Zabonne and Pulse Data:

Here in New Zealand, the market is very small, very very small, and so no one in JAWS or Dolphin would worry if New Zealand sank under the ocean. It really wouldn't make any difference to their profits. The market is very small in New Zealand (\*P, 18 February 2001).

According to Ivan Pivac of Zabonne and Morris Sloane of Pulse Data, Zabonne's main business did not involve blindness-related products, while Pulse Data's business was more lucrative overseas (Pivac 2001, Sloane 2001). Small market size thus led to a duopolistic situation in which technology supply was dominated by these two suppliers, leading to inadequate choice of technology.

Undoubtedly the New Zealand market structure, although developing specialised technology or making it available to visually impaired people, also resulted in some shortcomings. These problems were worsened by additional difficulties relating to the role of the Foundation - the subject of the next section.

### **8.2.3 Organisational Barriers: The Role of the RNZFB**

Having reported on funding and market-related limitations to participants' access and use of ACT, we now describe the RNZFB's impact in this area.

While the state played a more distant, funding and regulatory role, the Foundation was more immediately critical to blind and visually impaired New Zealanders successfully harnessing ACT's potential. This was because at the time of the study the Foundation exercised a virtual monopoly on blindness service provision by virtue of its special expertise in assessment, identification, matching and training in computer technology.

This monopoly position was supported by funding agencies' demand for official assessments, provided by that organisation, before providing funding for blind individuals. According to Thomas Bryan:

I guess without the assessor you're probably not going to get anything (\*Q, 20 June 2001).

Before proceeding to discuss the Foundation's role, it is worth reminding ourselves of two facts which set the following observations in context. First, in Chapter 4 we reported that the Foundation had been slow to respond to technological change. Consequently, at the time the study was undertaken the Foundation had not yet established an adaptive technology unit and the process of accessing and harnessing ACT's benefits occurred in an ad hoc fashion. This led to a series of problems such as lack of backup support for specialised technology and inadequate technology training, among others.

Second, since that time the Foundation had begun to make amends for its past failures. Since 2001 the Foundation has established an adaptive technology unit that manages training and backup support for specialised technology. It is thus possible that many of the problems reported may have since been eliminated.

However, due to our commitment to report participants' experience during the ACT revolution of the 1980s and 1990s, we are still obliged to report problems occurring in the context in which their empowerment took place.

### **8.2.3.1 Limiting Technology Selection and Matching**

In Chapter 6 (section 6.2.1.1.3, p.157), we identified participants' independent attempts at technology sourcing, selection and matching as one example of how they were demonstrating empowerment. We noted that because they could access information independently from the Foundation, they were able to take control of their lives. This

particular finding was important because of the Foundation's response to ACT during the early phase of the revolution. This section gives the background to this particular phenomenon of independent technology sourcing and explains why this effort was so noteworthy.

The Foundation's assessment process at the time of this study involved discussions between the assessor and potential users regarding their needs and the types of computer technology available to match those needs. This was to an extent participatory, with the assessor making the final decisions. An assessment was made on the basis of information obtained from the individual in question. Issues such as previous experience, intended use of technology, information regarding the particular technology available, cost and eligibility criteria were taken into account in making an assessment.

According to Martine Abel, a typical assessment involved a process of discussion and testing:

I'd let them come in, we'd talk a lot about what they want to do, can they buy it? Because then you have to look at funding. So I do a visual assessment, then I try them out on the stuff. I show them everything and let them have a go. And talk about their situation, do they need something portable or not, all that sort of things, we take that into account. Then we decide together, how we are going to get the funding for it (\*R, 9 February 2001).

Despite the Foundation's "participatory" approach to technology selection and matching, blind and visually impaired service users reported problems which led to their general dissatisfaction with the process and the need for them to exercise some control and independence over it. They reported that Foundation assessors did not offer choices in technology and that they were forced to accept whatever technology was offered to them. For example, Mike noted that although this eventually worked in his favour, he felt he had no choice in the decisions that were taken regarding the type of devices with which he was provided:

It's what surprised me when the Foundation for the Blind applied for the first computer for me at home. I'd learnt WordStar yet they applied for

WordPerfect and I wondered why they'd done that. It was pretty obvious fairly quickly that WordPerfect was a much, much better programme to use. And even just the screen readers that were chosen. I learnt one in Auckland and it was a different one applied for when I got my computer. It seemed that the decisions weren't really mine as to what computer gear I got ... (#92, 19 April 2001).

Five other participants reported that assessors at the RNZFB demonstrated very limited knowledge regarding available technology and so offered their clients no choice. Clients were often restricted to using one particular technology such as JAWS, as Greg related:

At the Foundation it would appear that there is a bit of a sort of, it's not really a bias towards JAWS, it's just that it's really the only thing that people know about. It's what the communications instructors are most comfortable with (#93, 3 March 2001).

The problem of technological choice and visually impaired people's participation in the process of technology selection and matching can be set against the backdrop of other reasons for dissatisfaction with the Foundation. The next section explores how the organisation's delayed response to harnessing ACT affected participants.

### **8.2.3.2 Restricting ACT's Potential**

Having noted earlier the Foundation's slow response to the ACT revolution (section 4.4.2, p.99), we report in this section how participants believed this affected their vocational empowerment. Many of the criticisms aimed at the Foundation related to its failure to help visually impaired people to access ACT and to promote entry to work.

Rudy, a Foundation member, saw the RNZFB as failing blind and visually impaired people by not providing the necessary skills to enable them to perform competitively in work settings:

Blind people of New Zealand at one stage were the only people who knew how to operate the typewriter keyboard up until the PC came out. All sighted people are now using keyboards and what the Foundation failed to do was bring the blind people up to speed in the technology area. Sighted

people were being trained up and until this day sighted people are being trained up and run away with this area in technology that only blind people once possessed. It was very rare to see sighted people using touch-type keyboards and I felt that the blind community has really got ripped off in that way (#94, 20 April 2001).

Participants viewed the Foundation, as the monopoly service provider, as critical to their ability to take advantage of employment opportunities presented by ACT. Juanita explained:

The biggest problem with it is that you can't just apply for a job and walk in and do it. There's all the other strings attached to it like will it work with what they use in that place and what's going to mess up and how long will it take to get everything working properly. I think that's a real big disadvantage for people. At the moment I would say that the Foundation haven't really got the systems in place to make it go as smoothly as possible. And it might be that some people end up that they lose a job opportunity through it ... They need to act quick, really quick. It's hard enough for people to get to the point of thinking that they might have employment without having that sort of stumbling block straight away. If everyone dithers too long, the whole thing just fizzles and that's not great.

The Foundation has never found me a job (#95, 7 May 2001).

Specialists from the Foundation explained that in reality their capacity to help services consumers was restricted by inadequate resources and their subsequent relative powerlessness. For example, the Foundation was, like blind individuals, restricted to the two main suppliers of specialised technology in the New Zealand market. Like other visually impaired consumers in New Zealand, it was required to purchase its equipment from designated third party suppliers rather than directly from technology manufacturers and therefore could not take advantage of cheaper prices by avoiding middlemen. As RNZFB instructor Thean Lye Ong explained, the organisation could exercise no control over this arrangement:

OK, we normally go through a third party. Because the manufacturers assign suppliers in different countries. So we go to the suppliers. So we don't directly contact the manufacturers. In fact we have done so on one occasion but they referred us back to the suppliers (\*S, 15 February 2001).

It was clear that the RNZFB's relative powerlessness stemmed from its insignificance as a technology consumer in the blindness market, as well as from the relatively small demand for such technology in New Zealand. The Foundation did not and could not exercise control over technology prices for instance, since it did not buy in bulk and thus was not eligible for large discounts (Ong 2001). This buying pattern made it difficult for the Foundation to negotiate any advantages for itself, as Thomas Bryan explained:

The people who we normally buy computers from, they will not give you anything - even places like Pulse Data. We have to buy a huge number of say, closed circuit televisions to get any sort of discount. We can't even say, well look, you've got a new product out there, how about giving us five demo models so that we can have them on show for people (\*T, 20 June 2001).

Having completed our perusal of the Foundation's role we now summarise our discussion up to this point. We have outlined three key features of participants' macro environment that have inadvertently increased their hardships. Funding policies as pursued by the state, no doubt informed by its neoliberalist drive for market efficiency, created inequities that disempowered the more vulnerable among study participants. Simultaneously, reliance on small companies for technology solutions in a duopolistic situation limited participants' choice of specialised technology. It also increased their vulnerability to proprietary practices by technology solutions providers. To further compound their problems adaptive technologies made them more dependent on specialised service providers like the Foundation and apparently increased their susceptibility to this organisation's weaknesses.

Access difficulties were followed by others when, having obtained ACT, participants had to interact with and use it to reap its benefits. The next section discusses participants' interaction with ACT.

## **8.3 Interacting with ACT**

Having accessed ACT, users had to interact with it to make it work for them. Although by and large their interaction produced a fascinating array of benefits (explored in Chapters 6 and 7), a number of problems arose to complicate this relationship. These problems - the focus of this section - sprang from three main sources: the disarray in technology training situations; complications emerging from specialised technology learning; and technological relationships, both between users and ACT and between mainstream and specialised technologies. We begin by exploring difficulties encountered in technology training.

### **8.3.1 Technology Training**

As reported in Chapter 4 (section 4.2.1, p.87), the history of ACT training in New Zealand was characterised by a general lack of priority, even though the Foundation made an attempt at it during the 1980s. This situation led to training being plagued with numerous problems relating to funding, time, standards and quality, issues which we describe briefly in this section.

Training problems related to funding (Table 26 below) led to others such as inadequate equipment, restricted training hours and delay in technology and training provision. Other issues stemmed from confusion over training responsibility, which further resulted in specialisation in training provision and separation of training content, as funding agencies and equipment providers began to train visually impaired users only in the kinds of equipment they themselves funded or provided.

These problems led to gaps in training content and quality. Training gaps were compounded by a general lack of certification and standards which left both trainees and trainers susceptible to poor training, variable training quality, and inability to compete in the external job market because of poor technological skills and unrecognised qualifications. Despite visually impaired users' best efforts training gaps also left them vulnerable to problems stemming from informal training, including such issues as narrow or specialised training and ad hoc access to unsystematic training.

**Table 26: Training Problems**

<b>Training Problems</b>	<b>Description</b>	<b>Consequences</b>
Funding	Agencies reluctant to fund equipment and training hours	Inadequate equipment, restricted training hours
Restricted training hours (20-40 hours only)	Inadequate number of hours for teaching and accessing ACT skills	Insufficient technology training, use of training hours for setting up equipment, insufficient time to help those who required more training
Delayed delivery	Compounded by funding eligibility criteria - late arrival of funding for training and of equipment for which training is required	Loss of potential job
Confusion of responsibility	Organisations in response began to specialise in training provision by the kinds of equipment, e.g. mainstream equipment providers offered mainstream training, specialised equipment sellers did the same	Separation of training content
Separation of training content	Restriction to either mainstream or specialised training content provision when both were required to enable users to use ACT effectively	Lack of necessary competence in both, increased frustration, gap in training provision
Gap in training	Difficulties in training and learning how to use ACT as both were required	Poor, ad hoc and insufficient training
Lack of standardisation	Absence of general certification and standards for users and trainers	Non-standardisation of trainers' qualifications, unsystematic approaches to training, absence of professional monitoring, inequality and poor quality training, restriction to informal training media
Informal training	Arbitrariness and ad hoc nature of informal training	Restricted / narrow areas of specialisation, lack of standards and adherence to accreditation processes, inadequacy. Poor preparation for job market

Owing to these difficulties, some users were left with undesirable competence levels which inhibited their ability to take advantage of ACT's potential. Jeff reported:

My capacity to use the internet is still very vestigial [*sic*] and I'm not using the internet to the extent that really would make a huge difference. So

that's related to my own lack of competence with respect to the internet (#96, 15 February 2001).

### **8.3.2 Technology Learning**

We move from the question of technology training to consider technology learning in this section. Technology learning refers to the understanding, knowledge and skills that enable users to master ACT and maximise its potential.

By its nature, specialised technology placed an added burden on blind and visually impaired users, who must master it to enable them to work. While sighted people in a typical office setting were required to learn regular computer programmes only, blind users had the added burden of learning specialised software in order to use regular mainstream programmes, as Jerry related:

When you start introducing a new programme, like when we changed to Windows, you had the hassle of having to learn the new programme and then learn the new adaptive technology ... And you have to learn one to be able to access the other, but you have to be able to access the other to know if you have learnt the first one. It's like a catch-22 situation. Every time we put in a new programme or new software, you have to learn how to adapt the adaptive software to fit the new programme. Our new database is a case in point. Zoomtext doesn't work on half the screen and in some cases it won't read out on JAWS either, so we have to upgrade JAWS and Zoomtext again (#97, 12 April 2001).

This constant struggle to upgrade technological knowledge stemmed from the incessant changes occurring in both mainstream and consequently specialised technology. Participants reported that they were forced to use and master new technology, as this was necessary for them to continue to access innovations and mainstream technology. While stressful and a major problem, this was a necessary condition to be confronted.

Although technology learning issues for visually impaired people were no different than for their sighted counterparts, their problems were exacerbated by the use of specialised, retrofitted technology to interact with rapidly changing mainstream technology. For

example, six participants related that technology learning was slower and more time-intensive, as Daniel explained:

I think it takes a little bit longer learning how to use a new software, or a new environment, and I think it's a little steeper because I have to learn new software in conjunction with my adaptive programme, so I think that's the problem (#98, 18 January 2001).

Compounding this problem, as explained by Ben, was the intensive nature of the specialised programmes that blind users were required to learn. These had additional keystrokes and commands that made learning problematic and difficult:

Because there are so many different keystrokes required and they are all different within different programmes, sometimes my ability to remember them all suffers a bit (#99, February 2001).

These made training difficult for blind learners to grasp and remember. Daniel reported that he encountered problems in recalling the information given in training sessions:

[Name of trainer] did training with me and he couldn't understand there were certain things that I was not going to remember. He had to write lists out for me, you know, like commands and keystrokes I wouldn't remember, but I didn't find it very easy (#100, 18 January 2001).

This intensive learning, in Ben's view, required among other things a huge investment of time and emotion from both the trainer and the trainee:

The cost of time and emotional upset and the learning curve and that, I think needs some weight placed upon it. Because it's an incredible journey to become conversant with the technology required to access all this information (#101, 7 February 2001).

Additional barriers such as the graphic nature of Windows also compounded technology learning problems. Jeff, a totally blind physiotherapist, reported that it was difficult to conceptualise the very graphic nature of Windows.

... I couldn't understand the Windows environment and I did then and still find it extremely difficult to picture what Windows is doing. I don't find Windows at all intuitive. I know some of my colleagues, who are blind, are just whizzes and they just take to it and say da-di-da. But I don't, you know, although I've been working with Windows for three or four years now, I still am struggling and I still find it extremely difficult. When things go wrong I don't know what to do, because I haven't got the intuition to work it out. But why can't I? I'm supposed to be reasonably intelligent and I can't do it and these people can. What is it? ... I think there is some cognitive process that enables some people to conceptualise Windows in the same way that some people conceptualise music and mathematics. That is a cognitive skill that I think some people have irrespective of their total IQ. Whereas some of us just don't have [it] ... (#102, 15 February 2001).

Jonathan Mosen, a specialist technology trainer with Out of Sight, confirmed the existence of this conceptualisation problem that Jeff identified. He explained that this made it difficult for blind people to come to grips with new technology:

I haven't been able to work out what the variable is. I don't know yet what makes one person really take to the [computer] and what makes another find it so difficult. It's not simply an intelligence thing. I know a lot of people who have very strong academic backgrounds, for example, who find all of this technology really tough. While it's always dangerous to generalise, I still have a feeling that the average blind person finds this stuff tougher than the average sighted person. I think that's probably because the interface of Windows is so visual and graphical by default (\*U, 24 March 2001).

The problem of technology learning examined in this section can be seen to stem from the relationship of individuals to technology. We conclude the discussion of interaction with ACT in the following section which explores problems arising from the relationship between users and technology and between specialised and mainstream technologies.

### **8.3.3 Technical Relationship Barriers**

The technical relationships which with we are concerned in this section are the relationship between blind individuals and mainstream technology and the relationship between mainstream and specialised technology.

In the relationship between humans and technology, mainstream technology must be accessible, in the sense that people can use the technology as it was meant to be used. In the relationship between specialised and mainstream technology, the two forms of ACT must interface with each other in the way they were designed to work together.

While in some instances both these relationships were relatively unproblematic, participants identified a range of problems arising when they broke down. The next three sections explore participants' experience with each kind of relationship in turn. The first two outline problems of relational breakdown, while the third describes the effects of poor technical relationships on participants' vocational empowerment.

#### **8.3.3.1 Mainstream Technological Change as a Barrier**

This section explores how mainstream technologies presented problems for study participants. Mainstream technological change was largely oblivious to the needs of visually impaired users. This was manifested in the general failure of mainstream technology developers to take into account the needs of blind and visually impaired people in introducing technological innovations, sometimes producing technology which was difficult for them to use. Steve reported:

It is difficult to see the text on a standard kind of a set-up ... well, if the computer could use a bit more audio in the interaction process that may be helpful to a blind person, like instead of just relying on the screen all the time, perhaps giving audible signals as well (#103, 27 February 2001).

This disregard or unawareness of the needs of visually impaired people meant that their capacity to access and use this technology was haphazard and inconsistent. This inconsistency was evident in the development of mainstream operating systems. Text-based systems such as DOS proved empowering to blind and visually impaired users, but

Windows or graphics soon surpassed DOS-based operating systems and programmes, effectively reducing their access to these technologies, as Brad recounted:

In the late eighties it was kind of a golden age because Windows hadn't really come on the scene and DOS access was becoming very mature and so ... we were doing lots of good stuff. And then it was in the early 1990s that we went through a bit of an accessibility crisis because it was clear that the world was moving to Windows and the technology gurus in the blind community were stumped about how blind people were going to use this technology, and clearly, now they've largely overcome those issues. But there was a real sort of period of depression in the early 1990s about how we were going to manage (#104, 24 March 2001).

Some technology manufacturers such as Microsoft have made some concessions to people with impairments through universal design, attempting to build some accessibility features into their technology (Sheldon 2001). Such features were reported as useful by eight participants, who used switch screen functions, font enlargement and larger monitors to help them to access electronic information. However, while these features helped people with mild impairments, they were less useful for the more severely impaired people who were the majority of this study's participants. For instance, Joshua reported that in the absence of specialised technology he was forced to use Microsoft accessibility magnification features, which were inadequate:

I've got something built into the computer ... It's called a magnifier. Unfortunately it only works at the top of the screen so it makes all the print at the top huge. It's very difficult to use it because you've got to keep scrolling up and down and up and down. Whereas ZoomText was really really neat because you could actually focus ZoomText ... (#105, 22 March 2001).

This inconsistent approach to technological change also meant that while some technology development facilitated accessibility, at the same time other aspects of its development prevented visually impaired users from maximising its benefits. For instance, the internet, though a facilitator of information access for blind people (Chapter

6), proved somewhat problematic for seven participants. They cited issues such as the graphic nature of the data, poor technology performance such as unexplained crashes or failure, lack of standardisation in data formats and the absence of speech-friendly labels and formats to enhance accessibility.

Having considered the relationship between users and mainstream technology, we now look at the relationship between specialised and mainstream technology and how it created problems for study participants.

### **8.3.3.2 Limitations in Interfacing Specialised and Mainstream Technologies for Work**

Visually impaired people who were unable to use standard off-the-shelf packages were required to use specialised technology to interface with mainstream technology. This relationship created other problems for users, which are our main concern in this section.

Due to increased integration of mainstream and specialised technologies, these two kinds of technology were becoming more compatible. For example, specialised technologies such as reading machines were no longer being created to function as independent units, but instead software facilitating the modification of mainstream PCs was employed to make technology usable for blind individuals. However, continued reliance on specialised technology generated interactional difficulties between mainstream and specialised technology, such as inaccessibility, incompatibility and poor performance.

The cause of incompatibility was a contentious issue among participants. Interviewees attributed a variety of problems (including frequent computer crashes, inability to use specialised technology to read screens, system failures, and error messages) to the interplay between mainstream and specialised technology. By contrast, four specialists reported that supposed incompatibility problems were often due rather to improper understanding and use of ACT by users. Thomas Bryan explained:

One of the biggest issues, though, is training. Quite often, the person doesn't know how to actually use the screen reader in conjunction with a new package ... if you look at, say, Window-Eyes with Outlook or Word or Excel, those are three fairly popular mainstream programmes, Internet Explorer, and both those products, JAWS, works seemingly well. But it

comes down to training and how much work the person is able or willing to put in themselves. Both Henter-Joyce and GW Micro put out a whole range of training information so people can use their product in conjunction with the more popular Windows-based applications (\*V, 20 June 2001).

However, specialists admitted that specialisation in mainstream technology development was heightening problems of incompatibility and inaccessibility for visually impaired people. Specialisation seemed to be occurring in mainstream industries and with various industrial products, making it difficult for adaptive technology for blind users to access and keep abreast of technology development. For example, the accessibility of cellphones to blind users has been diminished with the rise of texting in place of voice communications (Mosen 2001).

Having outlined the various problems arising from poor technical relationships, we now focus on their impact on participants.

### **8.3.3.3 The Impact of Technical Relationship Barriers**

Just as ACT usage allowed visually impaired people a range of benefits, technical relationship breakdown generated a range of problems. Participants identified three kinds of problem: powerlessness and frustration, lack of control over technological change and time lags. As this section shows, these three issues are interconnected.

Technology incompatibilities emphasised the helplessness and powerlessness of blind consumers to exercise control over either mainstream or specialised technological development. Rapid changes in mainstream technology precipitated rapid changes in specialised technology, with visually impaired users having to adjust to these changes. This was because, not being in strong influential positions to exercise control over mainstream technological developments, they were unable to prevent the development of incompatible or inaccessible mainstream technology. Shawn illustrated this:

My current programme, I can't use attachments. Well I can, but it is so difficult with the newer JAWS version ... Well, they've got us by the nuts. We can't do anything. Microsoft is Microsoft, we can't do anything (#106, 22 February 2001).

Development of inaccessible mainstream technology in turn forced visually impaired users to endure additional time lags as specialised technology required time to catch up. Other factors such as the nature of mainstream technological change (intragenerational or intergenerational) also exacerbated time lags. With intragenerational innovations the adjustment in specialised technology was generally smaller, requiring upgrades and patches. With intergenerational change such as the shift from DOS to Windows, the existing gap was increased and developers of specialised technology were forced to redesign new, specialised technology to access the innovations rather than simply modifying or upgrading older forms of technology.

Time lags were also worsened by access issues such as funding, government policies and bureaucratic practices, which made visually impaired users' access to innovations slower and more precarious. Sometimes this meant constant lagging behind, as mainstream technological development often moved on after retrofitting had been completed. This pushed blind users to keep upgrading, against their will, further heightening their frustration and powerlessness, as Brian reported:

Sadly, as you update programmes on your computer to take advantages of all the things that are happening with technology, your adaptive technology doesn't always run equivalently with it. You're in a bit of a bind then, because you either can't update, or you have to upgrade your adaptive technology at whatever cost that comes to be. So that is a problem (#107, 21 April 2001).

Mainstream technology modification and upgrading placed visually impaired users at a disadvantage when the upgrade was not matched by an upgrade in specialised software. Because specialised technology often did not keep up with changes in mainstream technology, people who were dependent on it to access mainstream technology faced problems of incompatibility and inaccessibility, as James related:

The biggest problems I have with the technology is upgrades. Every time speech software is upgraded, you have new problems ... Well, there's the latest upgrade to JAWS which I tried installing at work and it just wasn't working at all on our network. So what I had to do was back out to the old

version and then I had to wait until they bring out different releases of that version, until they ironed all their bugs out. So for example, Outlook doesn't work very well with it. So I'm busy trying to type email and instead of reading words to me it's still trying to read the whole line. So it just drives you mad. That tends to be the biggest problem I have with the technology, is new releases (#108, 14 February 2001).

These problems contributed to vocational disempowerment of blind users. They forced users to resort to dependence on sighted intermediaries in order to perform their tasks and assignments. On a more general level, two participants noted that their inability to access information in compatible formats, as well as poor performance of the technology, led to them aborting their educational programmes. More specifically, poor performance and non-standardisation of computer technology was a barrier to employment access for blind and visually impaired people, as argued by Carmen Taylor:

People would also like to get into call centres, because call centres are taking off in a huge way in this country, but the trouble is that call centres don't necessarily have a standard computer system or software that they use and they are not necessarily Microsoft-based, some of them are internally written (\*W, 19 February 2001).

This section demonstrated how technical relationships generated problems for participants. First, mainstream technologies were largely oblivious to their special needs. This forced them to catch up using specialised technologies. Specialised technologies, when they related well to mainstream technologies, were empowering. However, participants reported that they encountered problems stemming from incompatibility and poor relationships between the two.

To summarise our arguments in this section, we described difficulties encountered in participants' interaction with ACT. We identified problems in three main areas. Technology training problems denied participants some of ACT's benefits. They also experienced difficulties when trying to learn new technology. These problems were twofold, in that they had to learn specialised and mainstream technologies simultaneously. Training problems compounded others arising from interaction with

ACT. These problems occurred when participants were unable to access mainstream technological developments. When they attempted to use specialised technology to interface with mainstream technology they encountered a range of other difficulties.

Since participants had to interact with ACT to maximise its potential, these problems made this aspect of their experience difficult. However, this was not the complete story, as participants also reported encountering another set of barriers that hampered their capacity to make full use of ACT's potential for vocational empowerment. These barriers consisted of attitudes, which are discussed in the next section.

## **8.4 Maximising ACT: Attitudinal Barriers**

The previous section focused on problems encountered when visually impaired people began to interact with ACT. Most of those issues surrounded their interaction with and use of ACT. This section in contrast focuses mainly on limitations in the external environment that affected the successful use and maximisation of ACT's capacity for vocational empowerment.

Even though ACT had clearly created employment opportunities, participants had still not fully maximised these opportunities at the time of the study. One main indicator of this was the restriction of their sphere of operation. According to Jonathan Mosen, most blind people seem to be confined or restricted to the public sector or self-employment:

I find that a lot of the blind people are working in some sort of government field. It seems to me that the private sector lags a long way behind government agencies in terms of their willingness to employ blind people. So I've got a lot of government workers, dealing in sort of administrative type jobs ... Others are self-employed (\*X, 24 March 2001).

Mosen's observation regarding restrictions in the sphere of operation was supported by the finding that the majority of participants in this study worked in the blindness or disability sectors. Of the 49 people who were interviewed in depth, 15 worked in organisations whose main business was with disabilities. Of these 15, ten worked with the RNZFB and the other five worked in blindness and/or disability-related services in other NGOs or governmental organisations, or in self-employment. A smaller number of

interviewees (ten people) worked in mainstream or non-disability-related organisations. These included a range of private and public sector organisations involved in a wide range of services. The remaining interviewees were mainly students, unemployed or working only in a voluntary capacity.

Survey figures revealed that of the 67 people in paid employment, 14 worked in the public sector and 27 in private profit-making businesses and organisations (this includes self-employment figures). Twenty-six people worked in private non-profit organisations, including disability agencies and support services. Even in instances where people were self-employed or working in public sector entities, they worked in disability satellite jobs, for example as policy analysts, specialised technology trainers, specialists for disability issues and in disability services provision.

The study did not establish whether this was a matter of choice or a forced decision. This was important, because if participants had chosen to work in the blindness sector this would have been empowering for them. If by contrast they were forced into this area it would have been a disempowering alternative. This is similar to the situation with self-employment (section 7.2.2, p.197), which some participants chose because of its perceived benefits but which others were forced into because of negative attitudes encountered in the general labour market.

Unfortunately this question was not dealt with in detail during data collection because these findings on the sectors in which participants worked became apparent after the data collection phase was complete. This was one of the areas where the methodological limitations of simultaneously implementing triangulated data collection strategies became apparent. As we reported in Chapter 5 (section 5.6, p.144), the simultaneous gathering of data did not allow for follow-up of important leads and questions that arose and resulted in gaps in the exploration of some issues, which a more phased approach would have allowed for. However, while we cannot draw any definitive conclusions, we offer some speculations as to whether participants' employment in the disability sector can be considered empowering.

It appears that this situation may be a result both of choice and lack of it. Participants' choice to remain in the disability sector cannot be exclusively attributed to social

attitudes or problems in the labour market but may also be a genuine attempt to work to better themselves. This may explain why, although the majority of those who responded to questions about barriers to vocational empowerment (67 people or 78.8 percent) did report some perceived barriers (Table 27 below), a minority of 18 (21.2 percent) saw no barriers to their advancement. This meant that the latter group felt they were in a situation of power and control, to the extent that barriers associated with blindness were no longer consequential in their minds. Moreover, if participants were working in this sector out of choice, this may also explain the high levels of job satisfaction reported in Chapter 7.

However, since we are chiefly concerned with barriers to empowerment in this chapter, we will continue to present the negative side of the case. In instances where working in the disability sector may have been a forced decision, the attitudinal barriers participants reported may have contributed to this situation. In the next two sections we consider the role of personal and social attitudes in restricting employment opportunities.

#### **8.4.1 The Role of Attitudes**

Having noted in the preceding section that study participants seemed to be restricted to the disability sector, we analyse the attitudes which may be contributing to this situation. Specialist interviewees indicated that blind and visually impaired people exhibited a tendency towards segregation. This kind of behaviour manifested in two ways, firstly in choosing to relate and work almost exclusively with blind people or in blindness-related areas and secondly in gravitating toward stereotypical occupations.

Concerning segregation in employment areas, Rose Wilkinson of the ABC reported:

There's almost this attitudinal thing as well, you can work in the disability sector. So if you've got a disability you find work in a disability area. But you shouldn't be considering it outside of that (\*Y, 20 June 2001).

This segregation has tended to restrict visually impaired people's extent and sphere of operation in the labour market. Vic Sinclair argued:

When I look at individuals, I can quite clearly see a lot of visually impaired people who are well qualified to work in a place like ACC, who could

make very good case managers, who could make very good managers. However, I think in saying that, if I put a finger on a lot of these people, a large amount of those people, they actually still want to be individualised within the blind sector (\*Z, 13 June 2001).

Vocational advisers with the Foundation also identified gravitation towards stereotypical occupations. This led visually impaired job seekers to take up occupations already held by other blind people. These attitudes limited the job choices available to them. Despite ACT's widening of occupational choices and reduction of traditional stereotyping (section 7.2.1, p.192), computer-related occupations were apparently emerging as a new stereotype among visually impaired people. Genevieve Carroll, a vocational advisor with the RNZFB attributed this to ACT's perceived availability and accessibility:

I get a lot of clients who want to work with computers because it's perceived that there's technology available and that's what blind people can do. What often I have to do is educate them and say, well OK, sure, you want to work with computers, what do you think you might want to do? Often, they've got no idea because it's such a vast area (\*AA, 19 June 2001).

As explained earlier, we cannot draw definitive conclusions about the reasons for participants restricting themselves to particular employment areas, but despite the inconclusive nature of this particular finding, it was evident that participants experienced some difficulties in looking further afield which stemmed from their own and social attitudes. In the first case, lack of self-esteem and confidence was a barrier to some people's access to work. For example, participants such as Buzzeaxena admitted:

... It was more my own choice, like I was quite shy about having to go into a job where I'd have to use a cash register or things like that. Because I know it would take me a while to learn how to use it. And I was shy about that sort of stuff ... I think I really like at the moment to just know that I'm capable of doing employed work, paid work. Because that will feel so much better than feeling like I'm just a bum. So that would be really nice. I

think that would build my confidence. But actually perhaps my confidence is one of the biggest barriers in some ways (#109, 9 February 2001).

These experiences were undoubtedly reinforced by negative attitudes encountered in their external environment. This brings us to the second case: the attitudinal barriers participants perceived in their social environment appeared to be particularly important. Survey results in Table 27 below show that the most common perceived barriers to employment opportunities were social in nature, identified by the majority (61.2 percent) of participants. Of these the most common were ignorance, prejudice and discrimination (a full list is given in Appendix 18).

**Table 27: Perceived Barriers to Employment Opportunities**

<b>Barriers to Employment</b>	<b>Nature of Barrier</b>	<b>No. of People</b>	<b>Percent</b>
Social	attitudes, agencies, programmes, funding	41	61.2
Personal	self-esteem, confidence, attitudes, impairment, education, experience	23	34.3
Technological	changes, training, use, access	20	29.9
Physical / structural	transportation, communication, geography	11	16.4

(67 people, multiple responses)

These perceived social barriers appeared to restrict opportunities for the majority of participants (67 out of 85 people, or 78.8 percent), who perceived some barriers to further employment opportunities. Some reported that in response to problems encountered in the labour market, they lowered their expectations. Nadia, a technologically competent but unemployed job seeker, reported:

With a lot of rejections I have been getting, I find that why aim high when you should start small anyway. My main idea now is to push at full-time work and start from there, but even that is hard these days. When I first went out to look for work I thought, oh, I would be able to get in at a few places, 'cause I've got a bit of computer skills, and I felt that I had adequate skills as a customer service person and things like that. But things haven't turned out the way they were meant to, so I did lower my expectations due to that (#110, 3 April 2001).

The above discussion suggests that participants were probably choosing to work in the disability sector, as well as being forced into it through problems encountered in the labour market.

Perceived social barriers were also extremely important to the majority of interviewees. Accordingly, the remainder of this section focuses on how these barriers have restricted participants' access to empowering opportunities.

#### **8.4.1.1 Barriers to Workplace Entry**

This section discusses perceived negative attitudes that limited ACT's capacity to overcome barriers to employment for visually impaired people. In Chapter 7 (section 7.2.1.3, p.195) we reported that for some participants ACT had both increased their job opportunities and their attractiveness to potential employers.

Notwithstanding these benefits, other participants experienced a range of negative attitudes and resistance from potential employers and colleagues to their attempts at vocational empowerment. One indicator of this was the response to accommodation and adoption of non-standard technology in the workplace.

Owing to the use of specialised technology study participants had to retrofit their technology to that found in the workplace. Retrofitting in turn raised issues of accommodation, which provided an avenue for employers and colleagues to engage in disempowering practices, arising from ignorance and prejudice.

Ignorance, the more benign of these two barriers, became problematic when employers did not possess sufficient information regarding visual impairment or specialised technology's capacity to ameliorate its negative effects and enhance workers' productivity and abilities, as Ivan Pivac explained:

... Number one, if they need to access the technology, they have to sort of convince the employer that they can do the job, and better now with the [specialised] software. Often employers, they think if they close their eyes, and they think to themselves, Gee, how can we do this job if I was blind, and then they just can't understand how they could do it. So if they can't

do it, the blind person can't do it. That's just the way they think. It's very difficult to prove that yes, you can do the job (\*BB, 18 February 2001).

While ignorance was a substantial barrier, blind participants' experiences demonstrated ACT's ability to surmount it when employers became aware of its potential (Chapter 7). However, prejudice and discrimination presented a more difficult barrier to accessing work because potential employers still refused to hire blind or visually impaired workers. Dave, who experienced both ACT's helpfulness (#52 p.196) and these attitude barriers, explained:

Well, they wouldn't let it work out. That's probably the biggest issue for blindness, is that the majority of people won't let the technology work itself out. There's an answer out there for everything. But people aren't prepared, or don't want to spend the time to find the answer. If it can't be plugged in, turned on and fully operational, and have that person fully operational, working better than a sighted person from day one, life is very difficult for a blind person to get a job (#111, 20 February 2001).

Apart from outright refusal to hire, potential employers often erected secondary barriers that justified their refusal to hire, according to ten participants. Dave reported that he had difficulty obtaining work, despite the fact that he had been considered suitable for the job in every other way:

I got a job with the New Zealand police and they were putting their new computer system in, and of course we had to adapt their technology and they didn't like that. They did everything possible to put roadblocks to stop me from going to do that job. They wouldn't let me access information. And then when we got over one thing, they brought up another issue, like at the end one lady objected to my guide dog. So it was just issues, after issue. They brought up, Well you can't go out and have a cigarette. Well, I'm a non-smoker. But that was an issue for them, if I wanted to go out and have a cigarette. And issues like, How do I go to the toilet? How am I going to eat? How am I going to clean? They were worried about the semantics, not the issue - which is more frustrating. They didn't really want

to deal with the issues. I think they were more the problem than the problem itself (#112, 20 February 2001).

Dave attributed this resistance to the unwillingness of some potential employers to attempt to understand processes involved in adjustment and accommodation and the tendency towards stereotyping blind and visually impaired people:

So once you start talking about adaptive technology or doing something different, that takes people out of their comfort zone. That's probably the biggest downfall to being, you know, I'd say biologically challenged (#113, 20 February 2001).

Employers who were particularly resistant to hiring blind and visually impaired workers would usually not allow any kind of adjustment or modification to their systems to accommodate the needs of these workers. In the more extreme cases employers continued to resist even when confronted with not having to pay for specialised equipment or adjustments. According to Joshua, this attitude prevented him from accessing work after his sight loss:

I also almost got a job with the radio station writing scripts and I said the same thing, you know, OK I'm partially sighted, I can get the software. They said, No way, we don't want our computers loaded with some sort of what they called Mickey Mouse software ... they were quite prepared to send me down to the South Island to do a radio scriptwriting course to sharpen up on scriptwriting, but the moment they knew I needed adaptive software, they didn't want to know. It wasn't going to cost them anything at all (#114, 22 March 2001).

As noted above, potential employers were not usually responsible for accommodation costs because these were supposedly underwritten by agencies such as Workbridge and EMS. This issue was therefore a crucial test of potential employers' attitudes to hiring blind workers. If they were willing to hire visually impaired people, they would allow modifications, according to two participants who recalled that their potential employers initiated requests for accommodation to enable them to access work. It was noticeable therefore when employers resisted attempts to accommodate other workers.

Some of these attitude barriers also followed participants into work settings. We now discuss how the barriers to workplace entry described above play out in these settings.

#### **8.4.1.2 Attitude Barriers on the Job**

This section looks at barriers to maximising ACT's potential in the workplace. The issue of accommodation followed blind and visually impaired people into the workplace, as employers continued to engage in practices hostile to their retaining work. For example, Morris Sloane reported that in his experience, employers who were unwilling to hire or retain blind employees used the issue of technology modification to prevent these individuals from carrying out their duties:

I've dealt with companies that you know that they've got their hearts set on not making that person be able to do the job in the [work] place. You can just pick it up from what they say. I mean, there was a case of a girl in Auckland. They started off, the company was saying, No, she can't do it. It's got to the stage where it's deteriorating, she'd been working there for years and she got a closed circuit TV which allowed her to do that. Then they say, Now her sight is [worse]... and she can't do that, and as it turned out we had done a similar thing at Inland Revenue so we put that system in there and that saved her job for a year. At the end of that year it came up, We're changing our computer system, now she can't access it again. We did another thing there and that was a case of a scripting exercise because it was a custom database of that company and JAWS could be made to read that database and she just learned how to use it. I think she wouldn't have had too much trouble because she already knew how the database was laid out and she knew what was there, it was a matter of what to get out of it, but the company decided that it was too hard and they couldn't do that and it was their money and she lost the job. But, I guess I sort of picked up one year ahead that they didn't want to keep her, it was all too hard (\*CC, 23 April 2001).

Other employers implemented technology modifications and upgrades without allowing or installing suitable accommodations for their staff. For example, as Mike and other relatively low-level employees in one organisation reported, a decision was taken to

change the general systems for staff to report client information. This was not accompanied by a change in the specialised systems used by blind and visually impaired staff:

It could be modified much more but it hadn't been because they just said, well, cost was just too expensive to get it modified too much. It's a mainstream health system used by hospitals all over the country that we've just adopted. And there's a lot of information that we just tab past boxes without anything in them. If they got rid of the boxes - but it's too expensive to get rid of those (#115, 19 April 2001).

The extent to which these attitudes affected workers was dependent on their ability to neutralise or minimise the effects of such behaviour. The next section illustrates how their relationship to decision-making positions affected this aspect of their vulnerability.

#### ***8.4.1.2.1 Relationship to Power and Harnessing the Potential of ACT***

In our discussion of attitudes in the workplace above, we noted that lack of accommodation was one way in which visually impaired people could be disempowered through the negative attitudes of their co-workers. This finding was important and contrasted with James' positive experience (#82 p.216) of colleagues being helpful and accommodating to his special needs. We suggested then that this was probably partly due to the fact that he occupied a relatively senior position, implying that blind or visually impaired workers' relationship to power positions was an important determinant of their ability to neutralise the effects of negative attitudes. We explore this question further here.

The question of relationship to power was further highlighted by study participants' experiences implying that their relationship to positions of power was the key mediating factor in their ability to access and maximise ACT's benefits in the workplace. Nick, a senior IT manager in his workplace, reported that he could influence critical decisions and practices regarding his and other blind colleagues' access to and use of necessary adaptive technology:

... We have to go back I guess to the beginning of the current era, which is the Windows era. It was my job really to make the decision as to when the

[name of organisation] could move to Windows. If I didn't feel that the Windows applications were easily or even moderately easily going to be used by the blind staff, then I would decide that we wouldn't make that change. We would wait till things got better (#116, 14 February 2001).

This job afforded him relatively easy access to technology and to decisions facilitating his personal and professional work performance. At the time of his interview he was in the process of leaving this position for a less influential one as a student. He recognised that this change would affect the way he could manage access to technology:

Apart from just the opportunity to make things happen that would be significant for blind people in the organisation, having access to so much technology without having to worry about the money to pay for it has really been quite substantial. So that's going to be a problem for me from now on (#117, 14 February 2001).

The same pattern emerged in relation to appropriating the benefits of ACT in job performance. Visually impaired workers raised issues of collegial non-cooperation which prevented them from maximising ACT usage, as colleagues sometimes refused to make the most of technology to facilitate their job performance.

These situations appeared to be more pronounced and disempowering for workers in less powerful positions. This is shown by the contrast between the situations of Reggie (a manager) and Mike (a technology trainer and assessor). Both reported that their sighted colleagues insisted on presenting information in printed rather than electronic format, making it more difficult for them to perform their jobs. Reggie stated:

Often those problems are around my colleagues supplying printed material rather than getting into the habit of using electronically generated and providing me with the electronically generated information. So for example, most of my colleagues would generate information in using a word processor. Now it's just a matter of my colleagues getting into the habit of emailing that information to me rather than providing it in hard copies. Similarly our organisation is now doing its major publications, its information and bulletins, sending it out to private enterprise to publish for

them. And the problem with that is that they're coming back heavily graphic and more suited to sighted viewing, or the presentation is for looks and that sort of thing. So that's a wee bit of a problem (#118, 28 February 2001).

Reggie attributed this lack of cooperation to benign factors such as habit, noting that his colleagues had not yet become accustomed to using mainly electronic formats for presenting information:

Well, I think people try very hard to accommodate me. But I suppose it's kind of like a way of life for them to depend on hard copy ... it's a hard copy culture and that's still around. A lot of people try hard. And I suppose I'm fortunate at the moment that I do have a personal assistant who does ensure that the information that I get is in an appropriate format. But I would imagine for some people who don't have the luxury of a secretary / personal assistant that it must be difficult. And I know that it would be difficult if I didn't have her (#119, 28 February 2001).

Mike in contrast encountered attitudes which still did not cater for his needs:

I'm being given printed handouts at meetings where they were done on computer. They could have emailed them through (#120, 19 April 2001).

Both cases demonstrated that colleagues had not yet fully adopted the more blind-friendly electronic culture in their everyday operations and were still engaging in more hostile hard copy document production. Nevertheless Reggie's situation (with the advantage of a personal assistant) made it easier for him to exercise some control over document format. Mike on the other hand was unable to do this and remained relatively disempowered:

But that's just it, the organisation is getting better but we have to keep reminding them all the time. Like they fax through things to us that they could just as easily get copy typed and then emailed. And that's what annoys me more than anything else. It would be quicker for a proficient typist to copy type something than me trying to scan it and then work out

well what the scan copy was actually saying. Also when they fax out the same document to three or four of us, we've all got to sit down and scan it ourselves. Why not get one person to scan it and then copy type it to the four of us? Much much better use of time. So we're slowly trying to educate them (#121, 19 April 2001).

The significance of this relationship to power for visually impaired workers' use of ACT is that, notwithstanding Reggie's case, it appeared that blind people enjoyed only limited access to higher, decision-making positions in mainstream organisations (section 7.3.3, p.211). It also meant that visually impaired workers who were not in powerful positions still experienced a degree of vulnerability in harnessing ACT's potential. In an ideal world ACT should eliminate this particular vulnerability to make them fully equal to their sighted co-workers. However, because they do not operate in such a world ACT's current design leaves them vulnerable to the arbitrariness of depending on the goodwill of colleagues.

This said, the next section contemplates how ACT can in fact contribute to negative attitudes.

#### **8.4.2 ACT's Contribution to Attitudinal Barriers**

Paradoxically, ACT, though inherently empowering for visually impaired people, may also strengthen negative attitudinal barriers. ACT has (sometimes inadvertently) perpetuated differentiation and vulnerability to negative attitudes in a range of areas. Firstly, it exposed blind people to risk of stigmatisation. By its nature specialised technology is often distinct from mainstream technology, which sometimes makes it conspicuous. Conspicuousness occurs when the adaptive technology is so noticeably different that it makes users stand out among their peers instead of enabling them to blend in. Three participants related a level of discomfort with specialised technology's distinctness. Mark explained:

I think that computer or adaptive technology needs to be as normal as possible so it enables, it doesn't disable, so that it doesn't mean that you are a special [case], Oh you poor blind person, you have to have that fancy toy in the corner. Now what brings that to mind? When I was at Bible

College, I managed to obtain a visual text Voyager amplifier, and we set it up in the corner of the academic library, and all of my peers, friends and colleagues, would look at Mark reading his books under it, because it was big print. I needed it so I could see the big print. They needed it because it was a spectacle. It became an amusement to them. So I think we need to somehow guard ourselves against blind people becoming an amusement for others. Technology shouldn't become something spectacular so that it draws attention to the disability, you know, it should liberate us not captivate us (#122, 9 February 2001).

This perceived danger is not restricted to people with visual impairment. As Sheldon (2001:105) found in her study among older people with a variety of impairments, the question of ACT-induced stigma also prevented these people from using the technology and appropriating its benefits. Furthermore, viewed against the wider backdrop of negative attitudes and prejudice encountered by people with impairments, the question became more important because in cases where ignorance and prejudice prevailed, specialisation only heightened resistance to people with impairments from potential employers and colleagues. These conjectures however are open to scrutiny by future researchers.

We conclude this chapter in the section below.

## **8.5 Discussion and Conclusion**

This chapter, adopting the pessimistic perspective, set out to examine barriers militating against visually impaired people's capacity to harness the empowering features of ACT. This complemented the findings in Chapters 6 and 7, as it described the wider social context in which ACT's empowering potential had been accessed by study participants.

The study took this stance because it was apparent from the actions and attitudes of participants that they were in the process of redressing personal aspects of disempowerment. For example, they were educating themselves and engaging in voluntary work which allowed them some access to social resources. Yet they continued

to face barriers which prevented them from fully maximising ACT's empowering potential.

Equipped with the social model of disability and the social shaping of technology school of thought (Chapter 1), we identified three areas in which ACT's empowering capacity was being limited: first, in terms of visually impaired users' access to it, second, their interaction with it and third, their capacity to maximise it. We will briefly discuss the implications of these limitations.

The implications of participants' difficulties in accessing ACT were self-evident. In Chapters 6 and 7 we argued that ACT was a major facilitator of information management, participation, response capability and social resources generated from access to work forms. In instances where visually impaired people were unable to access ACT, they were denied these benefits.

In the New Zealand context this translated into inequality with sighted peers in relation to maximising the gains of development. In this study fortunately, most participants had accessed some forms of ACT, although some people needed more and a small number experienced problems in maximising vocational opportunities.

Many of these access problems could be attributed to the structure of New Zealand society and its response to development and technological change for blind and visually impaired people. The state, having adopted a strong neoliberalist stance during the 1980s, had conveniently continued a hands-off approach to the development and management of specialised technological change. Consequently, it did not proactively promote development of specialised technology during the ACT revolution. Instead it remained aloof, facilitating general funding which visually impaired people accessed to obtain ACT. For reasons of efficiency in management of state resources (Chapter 4), the state adopted a utilitarian philosophy to ACT that required participants to meet certain criteria to qualify for funding. Unfortunately both the state's aloofness and its utilitarian approach to ACT funding generated problems that disadvantaged the more vulnerable among the visually impaired.

Moreover, leaving visually impaired people to the philanthropic impulses of the market restricted their choice of specialised technology, owing to the small size and relative

unattractiveness of the New Zealand market. This was noteworthy as it indicates inequality with their sighted peers. While sighted people could access different operating systems and technologies from many suppliers, blind and visually impaired people were restricted to two or three. These restrictions in technology choice reduced their power as consumers, making them more vulnerable to the actions of technology suppliers than were their sighted counterparts (see Sloane, \*O p.238).

These problems were compounded by their vulnerability to the RNZFB's weaknesses. Owing to its slowness to react to ACT developments, blind and visually impaired people were left to fend for themselves, while the remainder of society probably thought they were being cared for by the Foundation (Chapter 4). For instance, the state did not promote specialised technology training for blind people when the Foundation's programme failed, nor did other mainstream institutions, leaving them faced with numerous ACT training problems. Participants believed this inaction had slowed ACT's potential for vocational empowerment (Rudy, #94 p.242).

Apart from the various problems encountered in first obtaining ACT, visually impaired people subsequently faced technical relationship barriers such as training, technology learning and technical relationship breakdown. These problems, argues the social model, probably emerged from longstanding perceptions and attitudes such as ignoring people with impairments. These attitudes manifested themselves in a mainstream technological change process that was generally oblivious to blind people's needs. Furthermore this change process was inherently disempowering by forcing visually impaired people to catch up in a qualitatively different way from their sighted peers. It was left to the philanthropic endeavours of smaller, specialised companies to ensure that they could access these changes through specialised technology.

This specialised technology and the process of retrofitting, though indispensable, in turn generated a series of disempowering situations when blind and visually impaired people tried to interact with ACT. Firstly, there was an increased burden in terms of training and technology learning because they had to learn to use two kinds of ACT simultaneously. Secondly, technical relationships, though necessary, were riddled with problems of inaccessibility and incompatibility, generating further disadvantages for the user.

These findings echo Roulstone's (1998) study which discovered that long-term, historical and social attitudes limited ACT's potential to empower disabled workers in British workplaces by erecting environmental, structural and technical barriers to their entry to employment. However, while Roulstone (1998:102) identified two kinds of technical barriers (those stemming from the nature of the technology itself and those emerging from the culture surrounding ACT), this study in contrast found that the main technical barrier facing blind and visually impaired people was rooted in the "culture" of technology which gave rise to forms of ACT that generated other barriers such as relational breakdowns.

As with access issues, the effects of technical relationship barriers were self-evident. They denied blind and visually impaired people full access to the equalising and normalising potential that ACT represented, which participants reported (Chapter 7) was an important benefit for enabling them to become vocationally empowered. Depriving them of these benefits meant also denying them access to flow-on benefits stemming from having access to ACT's potential in the first place. However, because most participants had already accessed ACT this only slowed their progress; in other words it made it more difficult for them to maximise these resources, rather than preventing their accessing them altogether.

On this note we now turn to look at the question of maximising ACT's capacity for vocational empowerment. Participants were mainly confined to the disability sector. This was controversial because we could not determine whether or not this was from personal choice. Consequently, we could not argue with any certainty that this was disempowering. What we established however was that there were factors in their social environments, such as attitudinal barriers, that could probably restrict their freedom of choice.

In part these findings have justified the pessimistic approach to ACT and people with visual impairments. From the social model perspective, there were indeed some structures that limited blind individuals' capacity to maximise ACT's vocationally empowering potential.

Our findings also justified the social shaping of technology view that technological change processes (and their effectiveness in this case) are influenced by social factors and institutional structures, response and choice. Blind and visually impaired New Zealanders had technology that was obviously empowering, yet its capacity was restricted by New Zealand's social structures, which exposed them, probably inadvertently, to unnecessary difficulties.

In Chapter 1 we argued that for true empowerment to occur, the peculiar circumstances of some traditionally disadvantaged groups must be addressed in the development process. This chapter has demonstrated why this is important. Prior to this chapter we showed how macro technological development processes had been beneficial to our study participants. We argued that they had resulted in creation of specialised technology that was helpful to visually impaired users, thus defending this kind of technological change since it allowed empowering specialised technology to emerge.

In this chapter we described the negative aspects of this kind of technological change. We focused on how general, structural and macro processes limited the empowering potential of ACT for people with visual impairments. This focus was particularly valuable as it demonstrated the paradox of technological change. This then reinforced our position (Chapter 1), which calls for a greater emphasis on the unique experiences of people with impairments in the development process.

We will explore these ideas further as we conclude this thesis in Chapter 9.

## **CHAPTER 9: ACT AND EMPOWERMENT: A CHALLENGE TO DEVELOPMENT**

### **9.1 Introduction and Thesis Summary**

At the heart of this thesis is the question of empowerment of marginalised peoples and the potential of technological change to improve their situations. This thesis entered the academic debate at a point where development and the role and impact of computer technology were under discussion. It aimed to add to this discussion by describing the experiences of marginalised people. We adopted a case study of blind New Zealanders' vocational experiences in an exploratory attempt to find out how, if at all, computer technology was helping to empower people with impairments.

The first four chapters were devoted to setting the background and broader theoretical context in which these experiences were to be examined. Chapter 1 explained the background and the theoretical position adopted in this study. It outlined dimensions of empowerment, as well as the importance of dealing with the impairment dimension. Rooted in the revisionist, alternative development framework, it adopted an approach that sought to exemplify principles of participation and empowerment. It borrowed from the two main theoretical frameworks, the medical and social models of disability, to inform the discussion. It also identified a dichotomy inherent in the various positions, where mainstream and medical model approaches could be seen to be promoting an "optimistic" approach to ACT. The more critical social shaping of technology and social models adopted a more "pessimistic" position.

Chapter 2 continued our stage-setting by attempting to answer the question of who should do the empowering. It explained some of the strategies for empowerment, both involving and excluding the direct intervention of the state, relating them as much as possible to the situations of people with visual impairments. It concluded that each of the three major actors identified, the state, meso-level NGOs and grassroots social movements, potentially played a distinct role in facilitating ACT's empowerment of blind and visually impaired people, but that a complementary approach was the most desirable.

Chapter 3 reviewed the literature surrounding the issue of computer technology. It introduced a fourth actor - the small corporate sector companies that designed ACT - and discussed the various kinds of specialised technology available to blind and visually impaired users. Using both the optimistic and pessimistic approaches it discussed first the positive and then the negative implications of using ACT for empowerment, vocational or otherwise, of blind and visually impaired users.

Chapter 4 situated all these issues in the New Zealand context. It described the ACT revolution in this country, the roles of the various major actors (the state, the traditional NGO, the self-help advocacy group), noting that they were generally slow to react to ACT's emergence on the scene. Instead we noted two sets of key actors who moved immediately to harness ACT's empowering potential: small corporate sector businesses along with blind and sympathetic sighted individuals who identified its potential early on.

Chapter 5 explained how the data were gathered and showed how the balance between the requirements for sound research methodologies and empowerment imperatives was achieved. Our participatory, empowering position was reinforced by a data collection strategy that wherever possible incorporated the views and instructions of people with impairments to ensure that these principles were upheld, while maintaining a credible research standard. This balancing act resulted in some limitations because of the participation criteria, as participants tended to be more obviously vocationally empowered, leading to results that could not be generalised to all blind and visually impaired New Zealanders.

Chapters 6, 7 and 8 set out the findings. They also reflected our desire to adhere closely to principles underlying this study and allow for the voice of participants to be heard as much as realistically possible. Consequently, our reporting of results used direct quotations as well as narration to provide maximum representation of their views.

The first of these three (Chapter 6) showed how ACT interacted with visual impairment and improved visually impaired users' functioning. ACT's main contribution resided in three building blocks for personal empowerment: information management, participation and response capability. ACT improved users' ability to manage information independently. Improved information management, especially in accessing and

processing information, led to other key benefits such as communication, which enabled users to participate in wider social processes facilitated by the internet. This benefit was important because blind people, as a consequence of their impairments, are sometimes unable to participate fully in group settings. ACT also facilitated participants' access to information, their knowledge and their awareness of their social and political environment. This increased awareness meant that they could start to prepare themselves to respond and adapt to the demands of their environment.

Chapter 7, the second of these findings chapters, showed how blind and visually impaired ACT users had begun to take advantage of wider social resources and vocational opportunities available through job changes, voluntary work and self-employment, among others. At this level people had begun to interface with their social environments in a way that enhanced their access to greater choice and opportunities.

Chapter 8, the final findings chapter, showed how underlying structural factors impeded ACT's empowering potential. It looked at ways in which social structures and processes such as funding and technological change processes inadvertently served to slow participants' maximising of ACT.

This chapter concludes the thesis discussion and sets out some implications of participants' experience for development approaches. It starts with a brief discussion of some of the lessons arising from the study in section 9.2, comments on theoretical relationships in section 9.3, provides general conclusions in section 9.4 and points to areas for future research in section 9.5.

## **9.2 Lessons from Blind New Zealanders' Experience: The Role of Individuals**

This thesis deliberately focused on visually impaired and blind individuals in the empowerment process because their situations were arguably being overlooked in the development debate. Individuals are the final willing or unwilling targets or beneficiaries of empowerment and development processes. Consequently, their particular situations must be acknowledged and considered when discussing development. This section explores this theoretical question as we seek to draw out some of the main lessons of blind New Zealanders' experiences with ACT.

A common criticism of mainstream development approaches is that they are overly concerned with macro processes that view individuals as abstract targets or distant beneficiaries of development processes. This approach arguably takes away from the discussion the significance of individuals, whose lives are severely affected by these processes. More surprising for us is the fact that although an alternative development approach allows the individual to emerge as the main subject of development, thus far in the development literature very few studies have focused on an understanding of the individual experience of empowerment, much less the impact of personal limitations such as visual impairment on the individual's ability to participate in the empowerment process.

Alternative development currently proposes a vision of disempowered groups or communities (in our case the blind and visually impaired) uniting and conducting a liberatory power struggle against the oppressive establishment. Bottom-up empowerment, in this scenario, is very much a collective business, involving the politics of identity. The key feature of this debate is its reliance on the collective or group as the main medium through which empowerment will successfully be achieved. For example, in response to the issue of who does the empowering, we saw in Chapters 2 and 3 that the broader empowerment literature identifies four key players in the empowerment game - the state, NGOs, the grassroots disability movement and the market (corporate sector developers of ACT). These represent the four players traditionally discussed in a development literature often concerned with the particular role of each actor.

What this debate omits is another, fifth, tier. This most micro-level group of all are self-empowering individuals, those with the personal initiative to identify and exploit opportunities. The New Zealand case study demonstrated that such individuals were the main grassroots actors in the ACT revolution, rather than "the blind" in some communal sense, as discussed by theorists of the alternative development and social model schools.

As seen in Chapter 4, although there was some mutual assistance, support, and exchange of ideas among blind and visually impaired people on a one-to-one or communal basis, ACT was never a cause around which the visually impaired mobilised as a group. Still worse, ACT was virtually irrelevant to the grassroots advocacy organisation, the ABC, which was too preoccupied with other issues such as the governance of the RNZFB to

concern itself with technological developments. Thus, while collective liberation struggle models may be appropriate for other groups of dispossessed and disenfranchised peoples, in this instance they were not applicable.

Among the various reasons for the absence of a collective approach, as discussed in that chapter, may have been lack of resources and of priority attention. However, from our point of view it may equally successfully be argued that some development problems are not best solved by collective organisations. In this case, the types of problems arising from the effects of visual impairment arguably meant that a collective solution would not necessarily be the correct, immediate response. For instance, impairment effects such as dependence, frustration and powerlessness at being unable to independently access and manage information (as reported by Bob, #5 p.150) were not necessarily to be solved by social movements, but rather by applications of ACT. In other words, visually impaired people's unique situation probably could not have been immediately resolved by collective, macro approaches, but rather by direct, personal ameliorative interventions.

In this instance ACT was the correct immediate and short-term intervention at the personal level. It impacted on unique and important aspects of personal empowerment which had major implications for blind and visually impaired people's participation in development processes. ACT generated a range of benefits for users in their personal and social contexts. It improved their information management abilities. Improvement in information management led to spin-off benefits such as communication, which facilitated their social involvement and participation. Participation and improved management of information improved their response capability, or their ability to respond to changes in their external vocational environment. These three benefits, when applied to the work context, led to increased access to another set of personal and social, tangible and intangible resources.

Although these benefits may be considered similar to those that sighted people would have gained from using ACT, participants' reports implied that for the visually impaired they were qualitatively different, marking them as distinct from other traditionally marginalised or disadvantaged groups. For instance, we found that ACT led to increased opportunities for blind and visually impaired people by converting information into electronic formats that they could access, thus enabling them to perform better in work

tasks. Webster (1996) in contrast concluded that computer technology changes had not resulted directly in job opportunities for women. Instead she attributed job changes to the restructuring of Western economies. While restructuring of New Zealand's economy was also a factor in determining blind people's access to work opportunities, it was clear that at a more personal level, ACT-enhanced independence and access to information had made it possible for them to perform in workplaces and thus that its impact on them was qualitatively different.

We judged that this qualitative difference warranted investigation and a special focus on individual experience, to improve our understanding of the impact of development and empowerment processes on people. To further illustrate this point, in the following three sections we concentrate on three prominent aspects of personal empowerment emerging from our findings. We begin with the question of functional empowerment and response capability.

### **9.2.1 ACT Works: Impact on Personal Functioning and Response Capability**

We argued in Chapter 1 that to make empowerment more relevant to people with impairments it is important to take their impairments into consideration. Furthermore, strategies should be adopted both to alleviate the negative consequences of the actual impairment and to eliminate the negative circumstances encountered as a result of social responses to impaired people. Action in this dimension would result in their functional empowerment, enabling them to join the rest of society in other development processes.

Our findings confirmed this view. In the context of wider changes occurring in society, blind New Zealanders had begun to take advantage of specialised technology designed to enable them to interface with changes in mainstream technology. ACT both compensated for their visual impairment and enhanced their capabilities, thus empowering them in a functional sense.

As we noted in Chapter 6, ACT's main contribution to personal functional empowerment resided in three building blocks for personal empowerment: information management, participation and response capability.

These personal benefits of ACT raised questions about accepted understandings of empowerment. While these view empowerment as mutual dependence and interaction between individuals and their communities, ACT's powerful personal enablement arguably reduced visually impaired people's need for dependence and interaction with the community. It enabled them to perform tasks such as reading or information-gathering that they were previously unable to do and were thus forced to interact with and depend on their community to perform. Because of its compensatory functions, ACT at the individual level actually made the user independent of the community and less reliant on interaction with others to function.

Participants clearly perceived this compensatory effect as empowering and attributed ACT's value to this particular function. In other words, at the personal level they perceived their empowerment as meaning independence from others, rather than greater involvement and dependence on others. For instance, Bob had been dependent on sighted readers and therefore vulnerable to the personal actions and preferences of his reader who, disagreeing with the particular religious view expressed in the book she was reading to him, unilaterally decided to dispense with it. Bob was unable to exercise control over this situation. ACT in contrast made him independent of intermediaries and subsequently less vulnerable to this kind of action (see Bob, #6 p.151 and section 6.2.1.1.1, p.153 for participants' experiences). Logically therefore, participants should have experienced greater empowerment through ACT if it enabled them to function independently of others and made them less vulnerable to the weaknesses and idiosyncrasies of their community.

This point is further emphasised by the difficulties and restrictions in maximising ACT participants encountered in their external environments. For example, having resorted to specialised technology to enable them to interface with mainstream technology, they were still confronted with another set of problems relating to technology access, interactional difficulties and negative attitudes. Regarding access to technology, they faced difficulties such as interacting with programmatic and social structures like funding criteria, which disempowered the more vulnerable among them. These barriers were further compounded by additional structural issues, such as the specialised markets and services provided by dominant organisations, that did not necessarily empower blind and visually impaired people in terms of technology choice, personal independence and

proactivity in determining their vocational and life choices. Interactional problems manifested themselves in blind people having to access unaccommodating mainstream technology in ways that aggravated the negative effects of their impairments. Further difficulties were encountered in making their specialised technology interface with mainstream technology. In addition, they faced attitude problems such as unwillingness to employ them or accommodate them to enable them to gain or retain employment.

Based on this negative response from the community it would be reasonable to argue that one sign of blind and visually impaired people's empowerment would be the ability to become more independent of the community and consequently less vulnerable to its negative actions. However as we will see in section 9.2.4 (p.287), the community was necessary to enable participants to maximise ACT's empowering potential.

Nevertheless this individual aspect of empowerment has some implication for empowerment practice because it raises the question of personal, individual situations in the empowerment process. As argued before, not all problems can be resolved by blanket, collective, mainstream solutions; consequently exclusive or excessive reliance on such processes in fact may ultimately lead to disempowerment at this level. Due to their tendency to produce universal approaches which ignore shades of distinction and nuances in the situations of different groups of people, macro-level social responses can sometimes inadvertently disempower the individual.

For example, the criteria for accessing technology funding described in Chapter 8 apply to everybody, regardless of the type of impairment. This is particularly disadvantageous to blind and visually impaired people because the nature of their impairment prevents them from accessing information. In order to meet the criteria of being in training or employed, blind people must first have had access to information about the course or job. Visual impairment, however, often prevents them accessing basic information about such opportunities in the first place. They are thus left in a catch-22 situation, because only at the entry point to jobs or educational programmes are they able to access funding for the assistive technology which is a necessary tool to first find and access the jobs or training.

Though not by design, this paradoxical situation continued to hamper blind and visually impaired people's quest for equality. Thus, while in a developed country context there

were minimum provisions for their basic material needs, their particular condition made them unequal even though the welfare state had tried to make all groups equal. This situation raises the question of how to direct resources to address the functional empowerment needs of each sector of the population.

The philosophies underlying many Western, mainstream responses to popular empowerment are rooted in egalitarianism, which seeks to equalise access to resources for the majority of the population. Such policies, though commendable, often hide the qualitative differences in the situations of diverse marginalised groups and consequently lose sight of their different needs and peculiarities in the general array of policy responses. Therefore, these needs remain unmet even within the developed country context, as reported in the social model debate in Chapters 1 and 2. This model argues for elimination of structural barriers that perpetuate disempowerment of people with impairments. This requires a more nuanced approach to policy in the sense advocated by alternative development approaches, where once a tolerable level of material comfort is achieved, more refined and needs-sensitive policies are adopted.

Having looked at visually impaired people's personal response capability we now move on to consider the idea of relative empowerment and its implications for empowerment and development processes.

### **9.2.2 Relative Empowerment**

This section explores the idea that empowerment is a relative situation as well as an absolute process. This idea arose because we were dealing with individuals and their perceptions of empowerment. Participants identified the twin issues of normality and equality, arguing that ACT made them equal to their sighted counterparts in terms of speed, information access and work performance.

From the old optimistic perspective ACT was hailed as a potential cure for problems of impairment because it compensated for bodily impairments and enabled users to perform tasks in a manner considered more normal for human beings. From this normalising function it was expected to produce other benefits that would resolve many of the problems and disadvantages suffered by visually impaired users. To some extent our findings on equality and normality appear to support this view.

Participants reported in Chapters 6 and 7 that information management, participation and response capability were three critical areas in which they were empowered by ACT. We noted that these are perhaps three of the most important areas in which visually impaired people are particularly vulnerable in all development contexts. This is because blindness exacerbates other disadvantages that they may encounter, in common with their sighted counterparts, in negative development situations.

So, for example, while other traditionally marginalised groups do encounter problems such as lack of information and inability to participate, the limiting effects of visual impairment have traditionally compounded blind people's problems. It complicates many kinds of personal and social activities and this extends to work and other major development processes. Thus their development problems are exacerbated not just by external structural factors, but also by their inability to interact with their social environments in relatively easy ways.

The emergence of ACT addressed this personal and unique dimension of impairment, acting as an equaliser in a number of ways. Visual impairment had made information management and task performance immeasurably more difficult for the visually impaired than for their sighted counterparts. ACT in contrast began to facilitate these processes in ways that made them feel they were equal to their sighted peers.

ACT's intrinsic nature levelled the playing field among users both in terms of their gender and their visual impairment status, as it was gender-neutral and its impact appeared similar regardless of visual status. More importantly, it arguably lessened visually impaired people's comparative disadvantages relative to sighted peers in similar positions and eliminated their relative inequality in terms of participating in and enjoying the fruits of development.

These benefits began to manifest in greater involvement in wider social processes of vocational empowerment. In Chapter 6 we saw that blind and visually impaired people had begun to harness ACT to enable them to upskill for better jobs in response to changes, greater demands and perceived opportunities in the job market. Chapter 7 described how they had begun to acquire social resources to enable them to continue the empowerment process. Moreover, their accessing other kinds of work that were

becoming available to their sighted counterparts also suggested that they were in effect being normalised in the workplace.

ACT's equalising and normalising benefits raised another interesting question for contemplating empowerment at the broader theoretical level. As we argued in Chapter 7, participants, probably unaware of this debate, defined their empowerment in relative terms. In other words their comments on equality and normality implied that they saw their empowerment as a question of their situation relative to their sighted peers, rather than in absolute terms.

Much of the discussion in development studies has centred on absolute ideas of empowerment. This is understandable as it largely aims to address the situation in developing countries, where many problems revolve around absolute deprivation and marginalisation. Our discussion occurs in a developed country context where these problems do not necessarily assume such importance as they have largely been eliminated.

For instance, one key characteristic of the study participants was their relatively privileged position in relation to ACT and other social resources. In this study, the eligibility criteria asked for people who were of working age and had come into contact with ACT. Since funding policies meant blind or visually impaired people had to be working or in training before they received funding, those people who met our criteria were already highly motivated and relatively vocationally empowered.

This minority had clearly attained some level of functional empowerment as well as access to social resources. Consequently study participants' issues no longer centred on absolutes of empowerment such as access to basic resources, but on equity and/or equality with their peers. Empowerment was no longer only about material needs and basic survival, nor the question of being dominated, but concerned relatively successful people. This elite group was now more concerned with issues more prominent in the post-acquisitive phase of development, such as freedom, independence, equity and choice.

From a theoretical point of view, it is possible that, like relative poverty, situations of relative empowerment exist. So policies aimed at empowering disadvantaged populations

may be required to take this issue into consideration. In the developing country context it may be worth exploring how people with visual impairment fare in relation to sighted counterparts. Some evidence in the literature suggests that general development problems exacerbate those stemming from their visual impairment and so increase their hardships (UNDP 1993, Barnes and Mercer 1995, Driedger 1996). This too may demand special attention in the implementation of development policies.

Relative empowerment, because it is so personal, subjective and intangible, obviously creates problems for policy-makers in developed and developing countries. This leads us to the question of intangible aspects of empowerment, which we explore next.

### **9.2.3 Intangible Empowerment**

Above we touched on the idea that empowerment, from the individual viewpoint, is subjective and relative. This situation is no doubt complicated by the fact that participants gained benefits from ACT that were intangible and difficult to quantify. This was not particularly surprising because we are dealing with individuals' experiences of empowerment and alternative development had already highlighted the existence of these intangible aspects of development.

One of the more noteworthy findings in Chapter 7 was that intangible aspects of empowerment appeared to be particularly important to participants. ACT increased their access to intangible resources arising out of paid and voluntary work. For instance, voluntary work allowed participants such as Muriel, who had been awarded a Queen's Service Medal, a degree of access to intangible and normative social resources such as status (#64 p.203). By accessing these resources she gained normative or ideological power because society thought her more valuable, enabling her to access more social favour.

We also pointed out that intangible resources may have been so significant because participants had enjoyed a measure of material provision under the New Zealand welfare system. Since this provision was sufficient to cover their basic material needs, work was valuable, not so much for its material rewards, but for more intangible rewards such as making a valuable contribution and participating in the community.

These intangible benefits should not be underestimated. As argued in Chapter 1, personal and subjective factors determine whether or not people can participate in development processes. Subjectively empowered people are more likely to continue to engage in actions that further their empowerment. In this case, participants who were manifestly subjectively empowered accessed ACT and began to expand their resources through increased social involvement, leading to greater access to social resources.

This finding is not particularly new, falling well within the alternative development call for a focus on the intangibles of development. In contrast to the instrumental, materialistic approaches marking mainstream traditional responses to development in which the state has marshalled resources to meet the basic material needs of its citizens, a consideration of non-material needs is necessary, as illustrated by our participants' emphasis.

Emphasis on intangibles demands a dramatic shift in cultural and philosophical perspectives, social frameworks and legislation. Herein lies the crux of the challenge for developed states. Intangible aspects of empowerment are murky, difficult areas with which to engage. Nevertheless, despite the rationalist, materialist framework that has determined the shape of social responses to mainstream development, there is a need for development frameworks to incorporate intangible aspects of human life and society which ultimately also help to shape these processes.

This is because development is about people and their actions and responses. People, although treated as rational creatures, are influenced by subjective issues such as confidence, self-efficacy, desire and beliefs. They also have the capacity to act in ways that are unpredictable, irrational and creative. They are complex, multifaceted beings with complex needs and responses, some of which are tangible, others intangible. Both are important, in that activity in either domain affects the other and both are mutually reinforcing aspects of life. Development strategies that ignore either domain of reality and emphasise the other will eventually lead to people being disempowered. Therefore, as supporters of alternative development have argued, mainstream development strategies must begin to engage with the intangibles of development and empowerment because these intangibles are key to successfully empowering people.

That intangibles are equally critical determinants of development is clearly demonstrated by the information transformation currently taking place. While information is intangible, has no weight or mass, and is not subject to the law of gravity as are material resources, it has nevertheless proven to be an increasingly valuable resource. The kinds of technology it has produced (such as PCs, speech software and the internet) are embodiments and tangible representations of information and ideas and are themselves tools to be used to assist in empowerment.

Information, as has been shown throughout this thesis, has been helping to reshape society and people's lives because of what they have chosen to use it for. This suggests that other intangible resources may also be expressed in visible, material structures and systems that help to empower people. They may also shape current systems in more empowering ways that favour marginalised peoples.

The discussion so far has demonstrated ACT's potency at the individual level. ACT had obviously impacted on participants in a number of ways that augur well for their future empowerment at the personal level and, as we argued above, was probably the most appropriate solution for their particular problem.

This idea necessarily placed ACT and the individual at the centre of the empowerment game played out in this thesis. However, this begs the question of what role the community and other stakeholders play. This question was inevitable because it is clear from our findings that there are critical linkages between users' ability to maximise ACT for personal empowerment and the social environment in which this empowerment occurs. We explore this issue in discussing the role of the community.

#### **9.2.4 A Note on the Roles of Other Stakeholders**

This section discusses the roles and impact of the community and other stakeholders, since individuals do not exist completely independent of their social environment. Participants' ability to take full advantage of ACT was in fact inextricably bound up with their relationship with their social environment. Indeed, the study also demonstrated that the extent to which participants could maximise ACT's potential was dependent on the extent to which social environmental factors facilitated or hindered them.

Facilitating social factors were evident at every stage of ACT acquisition and use, since there was input from other people. Individuals and small private sector companies driven by visionary individuals created specialised technology that enabled visually impaired New Zealanders to interact with ACT. The state, through financial assistance, enabled them to access this technology. When ACT first emerged on the scene, users engaged in mutual informal training to acquire technological skills. Successfully maximising ACT's empowering capacity often depended on enlisting co-workers' cooperation in using electronic rather than hard copy document formats (e.g. James, #82 p.216).

At the same time, participants' negative experiences when other stakeholders did not cooperate also served to highlight these stakeholders' critical importance. In Chapter 4 we noted that neither the traditional NGO (RNZFB) nor the grassroots organisation (ABC) proactively promoted ACT use among blind and visually impaired New Zealanders, who instead were left to fend for themselves. This failure to speedily encourage ACT use resulted in what some participants perceived as failure to help them to maximise ACT's empowering potential (Rudy, #94 p.242; Juanita, #95 p.243). In addition, after accessing both ACT and job opportunities, participants encountered difficulties when their colleagues did not cooperate and insisted on presenting them with hard copy documents (Reggie, #118 p.266; Mike, #120 p.267).

Moreover, participants' involvement in the community was an actual gateway to resources, both material and non-material. Chapters 6 and 7 demonstrated how the internet and other forms of ACT helped in making valuable social contact, with Chapter 7 in particular showing how they accessed social resources to continue the empowerment process.

We can conclude therefore that although ACT does afford users a kind of personal empowerment that potentially eliminates the need for the community, the community's participation and cooperation is in fact required for users to access this kind of empowerment. Our emphasis on the individual thus does not negate the need for social aspects of empowerment to be addressed as well. The two should not be seen as dichotomous and competitive, but complementary.

This conclusion raises some issues for empowerment strategies. At the community level, the challenge for developed countries like New Zealand is to restore people to their community while simultaneously facilitating development of the social resources resident there. New Zealand, like other developed countries, has a long history of institutionalising and institutional care approaches to people with impairments. However, with the neoliberal imperatives that commenced in the 1980s, New Zealand adopted a “community care” policy that placed people with impairments back in their “communities”. This policy unwittingly exposed them to the risk of social marginalisation because of ignorance or lack of care from their communities. Institutional approaches disempowered people by hiding them away from their communities so that the non-impaired population was largely unaware of or unfamiliar with impairment. These approaches have been blamed for the negative attitudes encountered by people with impairments, for example in Britain (Chapter 1). While parallel studies have not yet been undertaken in New Zealand, it is reasonable to expect that because it has practised similar strategies for a similar length of time, they have produced similar results. This may explain why attitudinal barriers seemed so important to participants (Chapter 8). Members of the general population were unaware of visual impairment and the capabilities of blind ACT users and so resisted hiring them.

Although developed country approaches to empowerment of people with impairments do not emphasise use of community resources the way developing countries do, the divesting of state responsibility inherent in the neoliberalist path adopted in New Zealand demanded a greater role for such resources. This implies however that empowerment approaches must genuinely foster development of community resources, not only in the instrumental sense, but also in the more idealistic sense in which the objective of such strategies is the empowerment of people.

While this is not a particularly new idea, it potentially has a qualitatively different and more pronounced impact on people who have been traditionally separated from their communities. The nature of blindness demands community cooperation for effective functional empowerment. For instance, participants’ problems decreased when colleagues used electronic formats to present information, while their functional stress and burdens increased when their co-workers refused this.

Community participation in the process of empowering impaired people is important because it is through interaction and knowledge that negative attitudes are broken down. For instance, participants reported that employers who did not know about ACT were willing to hire them after discovering its capacity to enable them to function in everyday work situations (Jason, #49-#51 pp.195-196). This kind of information is not easily passed on through macro-level state initiatives, but through direct face-to-face interaction with people.

Moreover, the literature reports that people with impairments in developing countries who have utilised community resources have successfully gained some leverage and helped to transform their disempowering circumstances, through strategies involving community-based approaches and strong, vibrant self-organisation. This implies that more micro-focused strategies, if adopted in New Zealand, could help eliminate some of the social barriers faced by visually impaired people and promote their continued empowerment.

For developing countries, the challenge is manifold and requires different starting points from their developed counterparts. Firstly, people with impairments often have not experienced the longstanding, formal institutional NGO- and state-dominated approach to service provision that has characterised the more organised Western approach. Consequently, they have had to rely for their daily survival mainly on informal networks and resources resident in families and communities (Pittaway 1997). They are often concerned with issues of access to the formal resources and basic rehabilitation services (UNDP 1993) necessary for empowerment in the functional dimension.

Due to the absence of formal networks, they have largely retained many of the informal resources made superfluous in more developed countries. In this sense, many developing countries have a head start in relation to their developed counterparts as they already possess the community resources necessary to empower impaired people and it is clear that much of the non-material component of empowerment takes place at the community and personal levels. However, as informal responses are largely incapable of handling the challenges posed by impairment in these countries (Pittaway 1997), the reality demands a formal material response as well. This for example is why alternative development writers such as Friedmann (1992) have argued that alternative development does not

negate the need for material resources, but seeks to restructure the system to make it more inclusive. This still puts the onus on developing countries to find ways to make resources available to marginalised peoples. As we argued above, this may mean careful harnessing of the benefits of technology to ensure that these people can be functionally empowered.

NGOs and community-based organisations (CBOs), because of their nature, can play a key role in facilitating this process, as they have immediate contact and interaction with people with impairments. The mediating role of such organisations is key to helping to empower people in the short term, especially in the functional sense. While governments generally have a wider reach and a greater potential to touch every corner of society, because of their inadequate operational frameworks and resources they are generally incapable of addressing the up-close and personal matters necessary for functional empowerment. While individuals can assist in the empowerment process, the nature of impairment, as described in Chapter 1, often means that they do not possess the material resources necessary to first access preliminary rehabilitation services to address their functional empowerment needs. Without such services, they are unlikely to progress to the social aspects of empowerment described above.

NGOs and CBOs, as argued by Korten (1990), can help to bridge the gap between individuals and macro social processes, eventually helping individuals to influence macro processes in ways that make them more favourable to their empowerment. Such an influence over these processes is vital if they are to result in the radical global transformation that is required for developing countries to participate in development and facilitate empowerment of their citizens.

Macro responses are still key to enabling some form of material empowerment at least. The New Zealand case demonstrates how institutional assistance has led to a tolerable level of existence for marginalised people. It may be that such assistance, where possible, would be useful in developing countries and that institutions such as the state, because of its reach and power, could help to direct social attention and resources towards their empowerment, through legislation and the work of NGOs.

Concluding our speculation on the role of other stakeholders, we summarise the discussion in this section. Impairment, owing to its nature as a personal condition, requires intervention in the shape of ACT, which implies independence from the community. However, this study has shown that the participation and cooperation of the community, as well as individuals' participation in the community, are critical to successfully harness ACT. We now consider further theoretical issues.

### **9.3 Theoretical Relationships and Development Issues**

At the outset of this thesis we armed ourselves with a formidable array of dichotomous theories that set the context for the personal dramas reported in later chapters. We argued then that participants in their everyday experiences might have very little knowledge of the various theoretical issues described in this thesis and that we would consider their experiences and the implications for these approaches. Participants' experiences appeared to confirm both sets of opposing theories outlined in this study, a phenomenon with which we are chiefly concerned in this section.

The first set of divergent perspectives related to ACT and the role of technological change in empowering people. In earlier chapters we noted that the first argument in respect of technological change was an old developmentalist one, which expected such change to bring development to marginalised countries and disenfranchised people. Opponents from the social shaping of technology school of thought saw this view as deterministic and myopic because technological change is not generated by independent inner technical logic, but is driven by underlying social choices and decisions. The first view saw impairment problems as easily resolved by presenting visually impaired people with ACT solutions. The second required a change in fundamental underlying social decisions and structures to address their problems.

To complicate this mix we looked at specific theories about disability. The social model argued that medical model approaches, resulting in technological development as a means of solving the problems of people with impairments, were generally misdirected. Instead society should be rehabilitated to enable visually impaired people to access information and participate. Approaches that saw ACT as a solution were deemed "optimistic" while the contrary perspective was labelled "pessimistic".

The second set of perspectives, less clearly differentiated, were mainstream and alternative theories of development. However, since alternative development is not totally opposed to its mainstream counterpart but is revisionist and similar in its development goals, we adopted it as a framework to inform our discussion of the roles of different sets of actors in the empowerment game.

Participants' experiences gave partial support to both optimistic and pessimistic perspectives. ACT's obvious positive impact at the personal level confirmed the value of the "medical" interventions that the social model disregarded. We noted that ACT impacted visually impaired people's personal functioning, their level of equality and normality and access to intangible resources. These benefits clearly confirmed optimistic expectations and thus partially resolved impairment-related problems.

However, our participants' experiences did not fully support the optimistic developmentalist view that technology production, if left to big international capitalist producers, results in effective technological solutions to development problems. In this case study the big corporations created mainstream technologies that in fact would have disempowered participants, had it not been for small individual-led corporate initiatives such as Pulse Data International and other informal manufacturers such as the Wilsons (Bob, #4 p.111), who created specialised technology to make mainstream technology accessible.

Small companies, rather than big corporations, have mainly assumed responsibility for using ACT to empower blind users. They seem to have combined the philanthropic and the profit-making motive and created specialised technology that allows visually impaired users to interface with mainstream technology. While mainstream technology such as Microsoft Windows allows for adjustments to facilitate specialised technology, its continued development has not yet fully incorporated blind users' needs in a way that protects them from technical interactional problems. Therefore, the small companies' contributions are indeed indispensable to blind users' ability to continue to perform and maintain pace with mainstream technological developments, especially while these persist in their present form. Nevertheless, reliance on retrofitting has continued to make participants vulnerable to rapid technological changes despite the goodwill of these small technology manufacturers.

This brings us to pessimistic perspectives. Findings such as potential employers' resistance to hiring visually impaired workers even when the costs of accommodation were fully covered (Joshua, #114 p.263) appear to confirm pessimistic criticisms of the deterministic approach. It was criticised as ignoring underlying social structures and the existence of factors in the social environment, such as attitudes, that still prevented visually impaired people from fully maximising vocational opportunities offered by ACT.

The social model perspective attributes persistent barriers to empowerment through ACT to longstanding attitudes towards people with impairments, which at best ignore them and at worst perpetuate oppressive practices. People with impairments have been targets of piecemeal social responses, in which addressing their needs has been tacked on after general responses and development processes have been decided or implemented. In other words, social responses to their needs have often been retrofitted onto a development framework that has already been defined without them. Thus in the present case, technological change is often defined without visually impaired people's input and their relegation to retrofitting is evidence of negative social attitudes.

While the existence of the barriers reported in this study does appear to at least partially confirm this pessimistic view, leaving the debate here is inappropriate. It casts the relationship between impaired and non-impaired people in a conflicting mode and denies the complexities of relationships between these two groups. In the conflicting mode there is an underlying assumption that relationships between the more powerful non-impaired and the less powerful impaired populations are governed by conflict and struggle, in which non-impaired people deliberately perpetuate disempowering practices and impaired people are forever trying to rid themselves of this kind of domination.

While to some extent this has been true historically (see Chapters 1 and 2), it reflects an unhealthy dose of "bloody-mindedness" for which Poggi (2001:12) chides analyses of power framed in the Weberian mould. It also ignores the fact that in reality non-impaired people also make choices and decisions that do empower people with impairments, as demonstrated by the private sector's development of specialised technology and the positive findings of this thesis.

To further the debate, we propose that the persistence of barriers to empowerment does not merely demonstrate how social structures disempower people with impairments in the sense proposed by the social model; it also reflects some of the negative side-effects of the top-down, macro development strategies adopted by New Zealand and other more developed countries. Chambers (1983:13-27) contended that certain biases, which lead to continual disempowerment of the most vulnerable rural poor, are inherent in the way development is practised and implemented in developing countries. He further argued (Chambers 1997) that disempowering approaches to development are often perpetuated through the professionalisation of the development process in a manner dictated by the methodologies and concerns of more developed and Western countries.

Persistence of barriers to empowerment demonstrates that the same is true for development practice and processes in developed countries, where general, macro-level social development policies and choices contain biases which serve inadvertently to disempower people with impairments. In this context, however, top-down social processes have led to a paradoxical situation, producing some undeniable benefits for blind and visually impaired people. For example, the state welfare approach has ensured that the majority of blind people can access some kind of financial support, the Foundation has ensured that some of their basic rehabilitation needs are met and a network of funding organisations have ensured that they have some access to ACT. Overall these benefits have produced the relatively well-off population that was represented in this study. At the same time, however, it appears that strands of disempowerment coexisted with these achievements at the time of the study.

If persistent social barriers and negative attitudes do not necessarily stem from a malevolent desire to control and dominate blind people, but from more benign factors such as ignorance, structures and practices that inadvertently perpetuate disempowerment, this may explain the contradictory nature of ACT's effects at the wider social level.

ACT helped some participants to overcome barriers of lack of knowledge and increase their attractiveness to potential employers (Chapter 7). Contradictorily, others faced continued resistance despite being qualified (Chapter 8). This was probably because study participants were early pioneers in the ACT revolution and were making the

crossover from the industrial society, in which visually impaired people were restricted to certain job types, to the new one in which they were being enabled to access wider opportunities presented by mainstream technological change. This was certainly evident in the kinds of jobs they were doing, even though these were largely restricted to the disability sector.

In the industrial era some of the jobs visually impaired people were enabled to do at the time of the study would have been significantly difficult to perform. Changes in technology clearly facilitated these job tasks in the new information society so that they were more easily performed and accessed. However, potential employers probably still required time to adjust their thinking and their behaviours to the new situation and the new potential being created by ACT.

Our consideration of the meaning of our findings for theory also implies a challenge to development, which we elaborate on in the following section.

### **9.3.1 The Challenge to Development**

The New Zealand case presents a series of challenges to the conceptualisation and practice of development and may mean different starting points for developed and developing countries. In this section we speculate on these challenges.

The clear evidence of actual and potential empowerment presented by the New Zealand case is undeniable. New Zealand has relatively successfully eliminated the basic material problems encountered by its general population and to some extent by people with visual impairments. It has, through the efforts of the RNZFB and the state, ensured some degree of functional empowerment for some of these people. This represents a preliminary stage of the journey. While our study group appeared to be relatively well off vocationally, it was evident from some participants' responses that more work is required to ensure that all visually impaired people are enabled to engage in this process.

For both developed and developing states, the challenge is still how to meaningfully include impaired people in the empowerment process. This ultimately requires sweeping transformations both within and across societies. Currently, much social engagement with people with impairments is limited to the functional and resources dimensions of empowerment, where NGOs and the state have tried to alleviate their negative

circumstances. Although this has been valuable, participants' experiences and the debate raging in disability studies between the medical and social model approaches demonstrate that empowerment at these preliminary levels is not enough to lead to long-term empowerment of people with impairments. Instead, more fundamental changes are required to integrate them into development processes.

These require a mammoth shift in thinking about development and people with impairments, to see them, by virtue of being people, as the central purpose of development. This shift may mean, for example, viewing people with impairments as candidates for social empowerment or a source of political power, rather than as a subsector of a welfare-deserving group in wealthier countries or a largely invisible sector of the population in poorer countries.

Making this initial shift in viewpoint may then mean, rather than treating disability as a health issue or a subsector of a welfare-deserving group, instead seeing people with impairments as central participants in policies that effect development. This question will arise sooner rather than later for developed countries, where populations are ageing and the incidence of impairment will increase with the ageing process. This means that the impaired population will also increase and demands for social resources will be greater. In developing countries, which lag behind on some counts, it will mean incorporating functional, resources and post-acquisitive issues into empowerment strategies at the outset of responses aimed at achieving development goals.

This kind of shift demands a more comprehensive, inclusive approach to the design and implementation of development processes, which takes account of special needs at the earliest stages of decision-making. Although this does not seem to be a new idea, in that human development purports to place people at the centre of development, the development debate implicitly assumes developed countries' situations as ideals for developing countries and marginalised peoples to attain. For example, concepts of "inclusion", "participation" and "decentralisation" often assume that people should fit into the status quo and their situations should be changed to enable them to do so.

This thesis on the other hand argues for a rethinking of development and changes in the status quo to accommodate people, rather than the other way round. As can be seen

from the experiences of blind New Zealanders, much effort has been concentrated on enabling them to access current technology and fit into work. However, while these attempts are valuable, Chapter 8 showed some of the disadvantages of this approach. Alternative approaches may include development of inclusive technology through universal design that accommodates visually impaired people's special needs at the conception and design stages of mainstream technology development.

At this point in time the information revolution presents an opportunity which, if adopted by people who can exercise power, may bring about radical transformation. Such a transformation can begin at the level of international organisations and governments whose policies shape macro processes and who determine the shape of societies. Small starts can be made with a shift in thinking about development and change at global levels. Such a shift can then be translated into policies and strategies that foster increased participation. This transformation must first disengage from the institution-centred approaches to participation and empowerment that have characterised these organisations so far and begin to truly place people at the centre of development processes.

For their part, people can force transformation by gaining political competence from participating in organisations and groups that enable them to be heard. Such movements are currently afoot in both developed and developing countries and in the short term provide the best way for people with impairments to enter the political game, both to gain political resources and to influence decisions in their favour.

Neither development processes nor technological change are natural progressions, but are informed and shaped by underlying decisions that eventually determine their trajectory. This means that, contrary to the perception that these processes are natural and exogenous to society and everyday lives, they are dynamic, flexible processes, defined by decisions made at every level of society. For ordinary people, choices about which products to consume create demand for such products and encourage big corporations to continue to produce them. At more powerful macro levels, governments, organisations and policy-makers carefully craft policies and strategies to achieve particular objectives. These decisions, though often based on observable determinants

such as wealth or anticipated political outcomes, are also informed by any number of intangible influences, among them vision.

The makings of a more visionary approach to development already exist within the accepted domain of alternative development. Writers in the Freirian tradition emphasise the need for a conscientisation process that encourages groups to identify sources of disempowerment and possible solutions to these problems. Gerber et al. (1992, 1996) identified the process of reframing that helps individuals to review their negative situations and embark on action to redress them. These processes, employed at both the micro and macro levels, can result in new solutions to old problems.

## **9.4 Conclusions**

As the experiences of blind and visually impaired New Zealanders have demonstrated, development is made or broken at the micro level. Development is both a personal and social experience and its long-term, ultimate success will depend on the individuals who experience or practise it. Writing to development professionals about the practice of development, Chambers (1997:13) argued that personal choice at the individual level is the critical ingredient that impacts the process of development. The actions of big transnational corporations, currency speculators, United Nations agencies, governments and NGOs are all mediated by individual decisions and action. This is because people can choose how to behave and what to do and so determine the impact and course of empowerment or development processes.

Because of the importance of individuals in the process of social transformation, it is vital that mainstream developed country approaches engage them. The central importance of people can sometimes be lost in states' efforts to maintain their place in the development queue. Often it is the very systems that have ensured their level of material well-being and preliminary forms of empowerment, that disempower people in some way, when the systems become their own reasons for existing and are rigidly and exclusively adhered to.

The call for a truly people-centred approach to development is reinforced by our discussion of the individual understanding of empowerment that must be addressed in the debate in order to help our particular group of people to overcome their disadvantages.

Thus, for instance, it is important that both developing and developed countries, when designing and/or adopting technological solutions, consider the unique situation of visually impaired people, in order to continue to maximise ACT's empowering potential.

While ACT clearly has empowering potential for blind and visually impaired people, it is important to avoid approaches that result in what Sheldon (2001:220) calls the "technical fix", where technology becomes a substitute for real change. ACT must not be substituted for measures that address the deep and historical disadvantages that shape the experiences of developing countries and marginalised peoples. Technological transformation cannot, by itself, change the negatives of disempowering social, political and economic systems, but must be supported by social decisions, informed by a vision that adopts the advantages of technological change as tools for development.

## **9.5 Directions for Future Research**

With regard to blind and visually impaired people and others with impairments, we suggest further research in a number of areas:

- Owing to the exploratory nature of this study, we were not able to establish beyond doubt links between interaction with ACT and perceptions of empowerment. Consequently more detailed, possibly hypothesis-driven studies will be required to confirm the existence of such relationships and determine their nature.
- The role of the Foundation deserves further research. Although this study only alluded to it, it was clear from our research that the Foundation's role is critical to harnessing ACT's capacities.
- Further study would shed light on the interrelationships and connections between the role of the Foundation and blind people's ability to harness vocational resources. Furthermore, a more detailed case study of the role of other social actors such as partners or family members may provide greater insight into the effects of empowerment of visually impaired individuals in the context of family or neighbourhood.

- As our study participants were a relatively elite group, a more broad-based survey may provide a clearer picture of the situation confronting blind and visually impaired New Zealanders regarding access to and use of ACT.
- Finally, a more post-modernist study may be needed. In such a study, techniques such as discourse analysis may enable researchers to probe more closely the post-acquisitive and empowerment issues for blind and otherwise impaired New Zealanders.

## **Appendix 1: Analytical Models of Power and Empowerment in the Sociological Debate**

The approach to empowerment is dependent on what is meant by power. Traditionally two main views of power have dominated sociological thought. These were notions of “power to” or power as an entity or facility and “power over” as derived from relational situations. The names “Parsons” and “Weber” are used as convenient shorthand terms to refer to the “power to” or functionalist approach and the “power over” or relational approach (Law 1991b:165, Zenz 2000). These “power to” and “power over” approaches have been greatly extended, revised and refined since Parsons and Weber wrote, so that from our perspective it is an artificial dichotomy and these two labels are only used for convenience. In the following discussion we are over-simplifying complex theoretical issues because, as we shall see, not all the debates about the nature and the rival merits of functionalism and relationalism are relevant to the task in hand.

The Weberian view of power, which has been more influential in sociology, adopts a zero sum approach to the question of power. Weber sees power as the chance of an individual or a group of people to achieve their own will in a communal action even against the resistance of others who are participating in the action (Giddens 1977:338). Here, power is seen as the ability to control other people’s behaviour, with or without their consent, to determine the distribution of resources, and the ability to determine one’s own goals over the opposition of others (Kloby 1999:3). The Weberian construct hinges on the notion of power as an expression of relationship between individuals or groups (Giddens 1977:338).

In contrast, the functionalist perspective, as articulated by Talcott Parsons, rejects the zero sum approach as well as the view that power is employed in the furtherance of sectional interests. Parsons sees power as the generalised capacity of groups or individuals in a group, a social or otherwise collective organisation, to carry out the agreed obligations of that group or organisation. As such, power is a generalised facility or resource in the society. In particular it is the capacity to mobilise society’s resources

to attain goals for which a general public commitment has been made. Therefore the amount of power is measured by the degree to which collective goals are realised. So the greater the efficiency of a social system for achieving the goals of its members, the more power exists in society (Haralambos and Holborn 1995:505).

Both conceptualisations of power imply different approaches to the question of empowerment. The Weberian view sees empowerment becoming more problematic. If there is a fixed amount of power in society, then increasing the power of one group implies, by definition, decreasing the power of other groups. This situation implies that the empowerment of the powerless would involve gains which would have to be achieved at the expense of the powerful, by forceful means or with their cooperation.

In contrast, the functionalist perspective of power as a variable sum implies that empowerment of the powerless can be achieved within the existing social order without significantly negatively affecting the power of the powerful. The powerless could be empowered, and they could then share in the fruits of development, alongside those who had already achieved power (Mayo and Craig 1995:5).

Despite the difference in these two sociological approaches to power, for our purposes, power spans both the capacity to do and relational issues. This can be seen when we apply these ideas to the personal micro-level aspects of power that exist in the ordinary world. In this world individuals with particular personal characteristics relate to each other in close personal ways and personal attributes such as race and gender (and impairment status in our case) determine their relationship to power (Foucault 1980:99, Scott 2001:143). At this level “power to”, or the personal abilities and capacity of an individual, is expressed in the capacity to act and is manifested in its dispositional nature.<sup>23</sup> The “power over” situation occurs at the interpersonal level where people usually interact closely with each other (Scott 2001:28).

In most concrete cases where human beings operate, the wielding of power requires both. If blind individuals want the functional empowerment that comes from acquiring new technology, they (or people acting on their behalf) must have at least some degree

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<sup>23</sup> The Oxford Dictionary of Sociology refers to the dispositional nature of power as the potential of the individual to act, rather than to actual occurrence (Marshall 1998:520). This means that individuals have the capacity to act in a variety of ways to favourably modify their circumstances.

of power over the decision-making process, such as the ability to have a state agency fund the technology. Similarly, if they are to wield relational power, blind people need resources to function effectively. Putting it another way, “power to” always operates within a “power over” context. Conversely, “power over” presupposes “power to” capacity. What interests us is not setting up an artificial dichotomy between the two faces of power, but analysing how they interact in one particular setting.

For our present purposes, it is functionalist power which is most relevant to our study. This is because the drive of blind New Zealanders and their allies to empower themselves is not a Weberian zero sum game, nor does it necessarily involve a power struggle between a group of dominant oppressors and their oppressed victims. Their situation cannot be adequately defined in Weberian terms as a struggle for relational dominance. Building their capacity through ACT does not necessarily take anything away from other groups; on the contrary, it increases the potential of the whole of society. Therefore, even though we recognise that the functionalist model, along with Talcott Parsons, has been out of fashion in sociology for decades, it would seem a more appropriate model than the Weberian one of dominators and the dominated.

That said, to return to the point made above, neither position on its own adequately represents blind New Zealanders’ situation, since to achieve “power to” it is inevitable that they must also possess at least a minimal amount of “power over”. At this point it is worth recognising that dealing with issues of empowerment for blind people may mean reconciling concepts that appear to be binary opposites to make them more applicable to the realities of their situations.

## **Appendix 2: Towards a Reconciliation of Key Actors' Roles in Empowerment**

In Chapter 2 we discussed three social actors in the drive for empowerment of blind and visually impaired people. We assessed their various contributions and the weaknesses of each approach and concluded that an ideal situation would need a united approach. Here we briefly outline the case in the general development studies literature for a reconciliation of the roles of each actor. We then argue that for people with impairments there needs to be a united approach to achieve their long-term empowerment.

Much of the discussion in development studies has concerned the state's role in the process of development. There is presently a general consensus in the literature that the state is important in the achievement of both empowerment and development objectives. This consensus can be seen to have derived from a) the failure of both mainstream and bottom-up approaches to radically transform the context of development for the majority of peoples; and from a renewed understanding b) that the problems of development require significant multi-dimensional, transformative measures, best facilitated by the state, to redress them and c) that the state, despite the antagonistic position adopted by neoliberalism, can foster development through responsibility for collective goods. These goods include maintaining a system of laws for economic exchange, providing new technology, building infrastructure and assuring mass education, essential functions for a well-run capitalist economy (Goldsmith 1995:649).

As a consequence of the shortcomings of mainstream and bottom-up development approaches, a pragmatic approach that involves both popular initiatives and the state is becoming increasingly necessary. Corbridge (1993:137) argues that the failure of mainstream approaches and the magnitude, nature and scale of development problems make it important for a combination of micro-scale and macro-scale approaches to be adopted to resolve them. Meanwhile the World Development Report 1997 points out that while bottom-up initiatives, such as those embodied in NGOs and voluntary organisations, are effective in voicing citizens' concerns, increasing awareness and

delivering services, especially in instances where states have failed, their weaknesses require that the state improve its capabilities while taking on board the capacities of both the voluntary and the market sectors (World Bank 1997:25).

The second factor favouring an important role for the state is the growing recognition that the problems of development are rooted in structural formations, such that it requires systematic, broader-based measures at the micro and macro levels to address these problems. Pittaway (1997:138-9) noted that although NGOs were providing services for people with impairments in Lebanon, state intervention was also required to implement complementary policies to address their situation. Likewise, Rahman (1995:28) argues that poverty in most countries is a macro-economic phenomenon and needs to be addressed with a macro development strategy that includes participatory development approaches as part of the mainstream approach to development. While Mayo (1994:208) concludes that community initiatives cannot be used to substitute for wider strategies of social, economic and political change, they can inform the process of developing alternatives. For other authors, it is underlying international and local politico-economic structures that systematically marginalise and disempower people. Consequently, this situation cannot be changed by local initiatives alone (Friedmann 1992:70, Townsend 1993:176). Instead, a multifaceted and multi-level approach is required to challenge and change underlying structures and transform the disempowering circumstances faced by the poorest people in society. This requires politicisation of all levels of society, which in turn implies the adoption of a joint search for a new unifying expression of citizenship and revolutionary change, as popular development initiatives do not by themselves lay the foundation for a new society and are means, not ends (O’Gorman 1995:214).

In a cooperative framework, the state and various non-state actors and agents of popular development can complement each other’s roles in the quest for people’s empowerment. Popular empowerment that takes place here is carried out through responsible, responsive, inclusive and proactive local governments (Penn 1993:318-9), as well as by “enlightened government that restructures its administrative structures to efficiently harness local and national social and economic resources” (World Bank 1997:110).

A responsive and cooperative state can provide an avenue or framework in which the various interests and operations of disparate classes, groups, territorial regions, NGOs and other non-state actors can be unified and made more efficient and effective (Friedmann 1992:84, Brohman 1996:349), while the state can benefit from the services rendered by non-state actors as well as from the knowledge, innovations, flexibilities and capabilities resident in these entities. Likewise, NGOs need the state because the benefits of community initiatives cannot be harnessed spontaneously. Instead, they need to be provided with regular public financing, together with education and training (Mayo 1994:130-1).

In a symbiotic framework (Hobsbawm 1996:276), the state remains relevant for redistribution and for social transfers to the more vulnerable sectors of the population. It is also an important element in the protection of citizens from forces that prevent their empowerment, such as wars, natural disasters, poverty, disease, ignorance and the extremes of market forces (Wertheim 1992:275).

In reality, the quest for empowerment of people with impairments has involved a combination of all the various actors described in Chapters 2 and 3. Their contributions, as we have shown, appear to vary to a certain extent between developed countries and the developing world. In the developed world it appears that states and relatively large, powerful NGOs have mainly managed the process of helping people with impairments to function and to access basic resources to survive. Likewise small corporate sector organisations have also managed to create specialised technologies that have enabled such people to access ACT or the immediate form of empowering resource that it represents. In developing countries NGOs and communities appear to be largely responsible for their basic survival and welfare.

However, an unbalanced approach appears to have failed to provide these people with long-term empowerment in either case. As we argued above, a unified approach from a variety of actors is required to successfully harness empowering resources such as ACT.

## Appendix 3: Types of ACT

By the time this study was conducted ACT had become part of the general and professional landscape for blind New Zealanders as much as for their sighted counterparts. As we saw from Chapter 4 a high level of computerisation was also apparent in homes, schools, businesses, educational institutions and most spheres of life which affected these people.

A range of assistive computer technologies designed to address the needs of people with differing eye conditions and varying levels of sight were available. For those who had relatively low levels of sight or more severe sight impairment, products such as speech programmes were more appropriate, whereas others who had more vision used large image programmes. As we have already discussed in Chapter 3 (section 3.2.2.1, p.63), these technologies allow blind people to access information by magnifying regular print or by substituting alternative output formats for sight. For instance, braille output allows the braille-literate blind individual to read text in braille, while speech output systems substitute voice for sight.

From survey results shown in Table 28 below, it appears that technologies designed for more severely visually impaired people were the most popular ones used. It is also worth noting here that “scanning technologies”, as used by participants, referred to those OCR technologies that were designed to allow severely blind people to access print from regular books. This technology is now frequently combined with standard off-the-shelf scanners.

**Table 28: Types of Specialised Technology used by Participants**

Type of Specialised Technology	No. of Users	Percent
Speech	66	87.9
Braille	28	37.3
Magnification	25	33.4
Scanning	24	36.0
Magnification and speech	2	2.7
Magnification, speech and braille	1	1.3

(75 people, multiple responses)

Of the 75 people who (in response to our open-ended question) listed the various kinds of technologies they used, 66 (87.9 percent) identified some kind of speech technologies. This was expected, as in Chapter 5 we had determined that more severely blind people had participated in this study.

JAWS was the most common speech system, used by 43 out of 58 people (72.9 percent), as shown in the breakdown in Table 29:

**Table 29: Types of Speech Output Software used by Survey Participants**

Speech Output Software Type	No. of Users	Percent
JAWS	43	72.9
Unspecified	6	10.2
Window-Eyes	5	8.5
Master Touch	4	6.8
KeySoft	3	5.1
Dolphin Speech	2	3.4
Keynote Gold	2	3.4
Hal	2	3.4

(58 people, multiple responses)

Its popularity, from the point of view of specialists, was due to its ability to keep pace with mainstream technologies. It had been adopted by the RNZFB, which continued to promote it over the years. Thean Lye Ong recalled that:

Microsoft came up with their Word so we had to more or less move to Word. And then there are one or two screen readers that also tended to concentrate on providing pretty good configuration files for Word. So we have more or less stuck with that movement. One screen reader that is quite popular is JAWS and JAWS system has pretty good configuration file for Word (#123, February 2001).

As Thean Lye Ong indicated, JAWS was becoming more integrated with mainstream technologies and had enabled users to access mainstream systems. Along with specialised technologies, blind New Zealanders also used a variety of mainstream technologies. Table 30 below (compiled from multiple responses of participants) shows a breakdown of the most popular types of mainstream technologies used.

**Table 30: Types of Mainstream Hardware used by Participants**

Categories of Hardware	No. of Users	Percent
PCs	42	65.6
Laptops	22	34.4
Scanners	20	31.3
Monitors - larger	11	17.2

(64 people, multiple responses)

A breakdown of the hardware types identified by 64 participants in Table 30 implies that the majority (65.6 percent) use PCs.

They also reported (in response to specific questions about mainstream applications) that they used standard off-the-shelf packages such as the Windows family which, according to Table 31 below, was the most common operating system used among the 81 survey participants. This contrasted with DOS and Unix systems, which were used by one person each and constituted a small minority (1.2 percent of people) in the sample. A notable 25 people (30.9 percent) did not specify which kind of operating system they used.

**Table 31: Operating Systems used by Survey Participants**

Operating System Types	No. of People	Percent
Windows	54	66.7
DOS	1	1.2
Unix	1	1.2
Unspecified	25	30.9
Total	81	100.0

Word-processing and spreadsheet applications were the most commonly used, as shown in Table 32 below. Of the 65 people who specifically indicated that they utilised some form of application, a small majority (52.3 percent) indicated that they used word-processing applications in their work.

**Table 32: Types of Mainstream Applications**

<b>Applications</b>	<b>No. of Users</b>	<b>Percent</b>
Word-processing	34	52.3
Spreadsheets	24	36.9
Unspecified	19	29.2
Database	8	12.3
System Utilities	7	10.8
Graphical	3	4.6
Other	5	7.7

(65 people, multiple applications)

Email and the World Wide Web were the only two internet and network facilities identified by 57 survey participants. Of these, email was used more, as Table 33 shows.

**Table 33: Internet and Email Use**

	<b>No. of Users</b>	<b>Percent</b>
Email	55	96.5
World Wide Web	26	45.6

(57 people, multiple responses)

## **Appendix 4: The Socio-Economic Status of Blind and Visually Impaired New Zealanders: Summary from the 2001 Census**

### **Impairments and Blindness**

Figures from the 2001 New Zealand census (Statistics New Zealand 2002, 2001a, 2001b) indicate that 20 percent of the population experience some form of impairment. Fourteen percent of all New Zealanders suffer from physical impairments, 9 percent from sensory impairments and a small one percent from psychiatric impairments. Blindness and sight limitations are of relatively low incidence both in the general and impaired population, affecting only 1.1 percent of the general population and 2.6 percent of people with sensory impairments. A total of 69,300 New Zealanders have sight disabilities.

### **Cause of Impairments**

The 2001 census shows that the majority of visual impairments have natural causes. Nearly one third (30.4 percent) of sight impairments are caused by accidents, while the majority (69.6 percent) of sight impairments have other causes.

### **Other Impairments**

The majority of visually impaired people (82 percent) have other disabilities.

### **Gender and Age**

Sixty percent of those with sight impairments are female and 40 percent are male. Nearly half of all blind New Zealanders (46.7 percent) are aged 65 and over. An additional 20.6 percent are aged 15-44, with 32.5 percent aged 45-64.

### **Ethnicity**

The majority (75.6 percent) of sight-impaired New Zealanders identify themselves as European. An additional 15.1 percent identify themselves as Maori and 7.9 percent as belonging to another ethnic group.

## **Labour Force Participation**

Census figures comparing labour force participation rates in New Zealand for people with impairments and those without show that 40 percent of people with impairments are employed, compared with 70 percent of people without impairments. Over half (55 percent) of people with impairments are not in the labour force, compared to one quarter (25 percent) of people without impairments. In both groups 5 percent of people are unemployed.

Data from the 2001 census show that around one quarter (23.7 percent) of blind New Zealanders are employed. However, the majority (70.9 percent) of blind New Zealanders do not participate in the labour force, and 4.5 percent are classified as unemployed. These figures may be partly explained by the fact that the majority of eye disease in New Zealand is linked to age and the majority of blind New Zealanders are older (LaGrow 1992).

However, blind working-age New Zealanders are still largely unemployed and underemployed. LaGrow (2002), from a random sample survey among 150 working-age members of the RNZFB, found the majority not working in paid employment and a low rate of employment at 39 percent. Underemployment was noticeable with between 9 and 28 percent who could be considered underemployed, with 19 percent being an easily defensible figure. Unemployment figures were not considered the opposite of employment, but were defined in terms of people who were actively seeking jobs and those who were willing to accept jobs if they were available. This yielded an undesirably high rate of between 14 and 24 percent, depending on the definition used. An important minority (45 percent) of people in paid jobs worked on a part-time basis.

## **Income**

Regarding income, people with impairments generally earn less than their sighted counterparts in New Zealand. Table 34 below indicates that a sizeable minority (48.9 percent) of people with impairments earn less than \$15,000 per annum, compared to a smaller minority (34.8 percent) of people with no impairment.

**Table 34: Total Annual Personal Income for New Zealanders with Impairments and Non-Impaired New Zealanders**

<b>Total Personal Yearly Income</b>	<b>Percentage of NZ Adults With Disabilities</b>	<b>Percentage of NZ Adults Without Disabilities</b>
Less than \$15,000	48.9	34.8
\$15,000 - \$30,000	21.6	22.7
\$30,000 - \$50,000	11.9	18.8
\$50,000 or more	5.4	11.5
Not stated	12.2	12.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Note: this comparison takes into account impaired people living in households but not those in institutions.

Source: *Statistics New Zealand 2002:62*

The 2001 census shows that 12.8 percent of blind New Zealanders earn less than \$15,000 per annum, nearly a quarter (24.7 percent) have incomes between \$15,001 and \$30,000, and an additional third (34.5 percent) earn over \$30,000. It is important to note that income data are not available for over a quarter (28 percent) of those surveyed. The majority of those surveyed however (59.9 percent), hold a Community Services Card (card for people with lower incomes), implying that those for whom income data are not available most likely fall within the lower income brackets.

### **Levels of Qualification**

Nearly one third (29.9 percent) of blind New Zealanders have no qualifications. One quarter (25 percent) have school qualifications only, and an additional 16.3 percent have post-school qualifications. No data are available for 28.7 percent of those surveyed.

### **Assistive Equipment**

According to the 2001 census, nearly three quarters of sight-impaired New Zealanders (71 percent) use special equipment to compensate for impairment-related restrictions. The majority of those using special equipment are not in the labour force, however. Figures show that only 14.7 percent of this group are employed and over half (54.7 percent) are not in the labour force.

## **Appendix 5: Information Sheet for Personal Interview**

(also available on cassette or diskette)

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

#### **Who is doing this research?**

My name is Wendy Williams. I am a PhD student in the Institute of Development Studies at Massey University in Palmerston North. My contact details are as follows:

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I have worked as a volunteer in the disability sector for ten years in my home country, Jamaica. I am almost totally blind and am currently experiencing significant deterioration in my vision. About six years ago, I became interested in assistive computer technology (ACT) and the ways in which it could help people like me to access employment.

#### **What is this research about?**

Through this study I would like to find out whether or not ACT is affecting employment for blind and visually impaired people in New Zealand. I am therefore interested in the extent to which it is enabling these persons to obtain and remain in satisfactory jobs that allow them to independently provide for themselves. I also want to find out the ways in which computer technology affects quantitative aspects of employment such as the number and types of occupations, employment status, job acquisition rates and job opportunities, as well as qualitative aspects of work such as skills, job satisfaction,

productivity, training, career advancement and employability for the visually impaired. In addition, I want to assess the extent to which disability policy and practices promote or hinder the potential of assistive computer technology to facilitate employment for blind and visually impaired persons and finally, to identify the policy implications of the findings for New Zealand.

The study will contribute to academic research and policy formation by systematically documenting the employment experiences of persons with visual impairment. It is also expected to increase the amount of information available to other researchers and policy-makers in New Zealand. Your participation would be very helpful to enable me to provide sound, accurate and reliable data, which may be used to inform policies to improve access to opportunities for persons with visual impairments.

### **How did this research come about?**

As a consequence of my worsening vision, I became particularly interested in ways to improve access to information and employment opportunities for myself and other persons with similar impairments. I discovered that not much information was available regarding the potential impact of computer technologies, ACT, and employment for us. Hence, there was not much information for governments and organisations to use to design strategies and policies to assist us to harness any potential that might reside in these technologies. I was offered a scholarship to participate in the Development Studies Programme at Massey University. This is allowing me to look at this matter in some detail and to make recommendations, which may be useful to relevant stakeholders in New Zealand and in my own country, Jamaica.

### **What will participants be asked to do?**

You will be asked to sign a consent form to show that you are aware of what the project involves and that you accept the invitation to participate in an interview detailing your opinions and experiences relating to the use of ACT and employment and the ways in which it affects your work and employment. I can come to your home or another suitable location to carry out this interview.

The interviews will last about one hour, but may take a bit longer depending on the extent of questions you ask and the length of answers you provide.

This will be taped if acceptable.

### **Issues of privacy and confidentiality: how is confidentiality and privacy to be ensured?**

- Data collected will not identify you by name.
- No personal information will be passed on to any other person or agency such as the Royal New Zealand Foundation for the Blind, EEO Trust, Workbridge or any other agency. They will, of course, be interested in the overall results of the study, but none of your private information will be made available to anyone other than the researcher.

- Data analysis will be undertaken and reported in such a way that information cannot be directly linked to you.
- Material used to collect information will be kept in a secure place accessed only by the researcher and destroyed when it is no longer needed for the study.
- If any research assistants are hired to help transcribe data, they will sign an agreement to confidentiality.

### **Your rights as a participant**

You will be asked to complete a consent form before participating. It outlines your rights as a participant in this research.

- Your participation in this research is entirely voluntary. You have the right to decline any involvement.
- You have the right to refuse to answer any particular questions, and to withdraw from the study at any time.
- You have the right to ask any further questions that occur to you during the course of the study.
- If you decide to withdraw from the study, material collected from interviews will be destroyed or returned to you.
- You have the right to refuse to agree to the interview being audiotaped.
- You have the right to have the tape turned off at any time during the interview.
- Your participation will remain confidential to the researcher. That is, your information will be used in such a way that you will not be identified and is given on the understanding that your name will not be used under any circumstances, unless you give permission.

A summary of the findings will be available to you at the completion of the research, on request. Tick the box on the consent form if you would like a report of the research.

### **You will need to:**

Contact the researcher directly if you are interested in participating, by phoning Wendy Williams at 64 6 350-6169 or email: [wendyew@xtra.co.nz](mailto:wendyew@xtra.co.nz) and agree over the telephone, in writing, or in person, to what is stated in the consent form.

This study has received approval from the Massey University Institute of Development Studies Departmental Human Ethics Committee.

Thank you for considering this request.

If you have any questions regarding any aspect of the research please do not hesitate to contact me or one of my supervisors.

Wendy Williams  
Principal Researcher

## **CONSENT FORM FOR PERSONAL INTERVIEW**

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions. If I decide to withdraw from the study, material collected from interviews will be destroyed or returned to me.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission.

The information will be used only for this research and publications arising from this research project.

I agree/do not agree to the interview being audiotaped.

I also understand that I have the right to ask the audiotape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed:

Name:

Date:

Tick here if you would like a summary of the research findings.

## **Appendix 6: Information Sheet for Specialist (Key Informant) Interview**

(also available on cassette or diskette)

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

#### **Who is doing this research?**

My name is Wendy Williams. I am a PhD student in the Institute of Development Studies at Massey University in Palmerston North. My contact details are as follows:

Wendy Williams  
Email: [wendyew@xtra.co.nz](mailto:wendyew@xtra.co.nz)  
Tel: 64 6 350-6169

Postal address:  
Colombo Hall, Massey University  
Private Bag 11222  
Palmerston North  
New Zealand

My supervisors are:

Professor John Overton  
Institute of Development Studies  
Email: [j.d.overton@massey.ac.nz](mailto:j.d.overton@massey.ac.nz)  
Tel: 64 6 356-9099 ext 2504

Professor Steven J. LaGrow  
School of Health Sciences  
Email: [s.j.lagrow@massey.ac.nz](mailto:s.j.lagrow@massey.ac.nz)  
Tel: 64 6 356-9099 ext. 2248

Associate Professor Peter Beatson  
School of Sociology, Social Policy, and Social Work  
Email: [p.beatson@massey.ac.nz](mailto:p.beatson@massey.ac.nz)  
Tel: 64 6 356-8251

I have worked as a volunteer in the disability sector for ten years in my home country, Jamaica. I am almost totally blind and am currently experiencing significant deterioration in my vision. About six years ago, I became interested in assistive computer technology (ACT) and the ways in which it could help people like me to access employment.

#### **What is this research about?**

Through this study I would like to find out whether or not ACT is affecting employment for blind and visually impaired people in New Zealand. I am therefore interested in the extent to which it is enabling these persons to obtain and remain in satisfactory jobs that allow them to independently provide for themselves. I also want to find out the ways in which computer technology affects quantitative aspects of employment such as the number and types of occupations, employment status, job acquisition rates and job opportunities, as well as qualitative aspects of work such as skills, job satisfaction,

productivity, training, career advancement and employability for the visually impaired. In addition, I want to assess the extent to which disability policy and practices promote or hinder the potential of assistive computer technology to facilitate employment for blind and visually impaired persons and finally, to identify the policy implications of the findings for New Zealand.

The study will contribute to academic research and policy formation by systematically documenting the employment experiences of persons with visual impairment. It is also expected to increase the amount of information available to other researchers and policy-makers in New Zealand. Your participation would be very helpful to enable me to provide sound, accurate and reliable data, which may be used to inform policies to improve access to opportunities for persons with visual impairments.

### **How did this research come about?**

As a consequence of my worsening vision, I became particularly interested in ways to improve access to information and employment opportunities for myself and other persons with similar impairments. I discovered that not much information was available regarding the potential impact of computer technologies, ACT, and employment for us. Hence, there was not much information for governments and organisations to use to design strategies and policies to assist us to harness any potential that might reside in these technologies. I was offered a scholarship to participate in the Development Studies Programme at Massey University. This is allowing me to look at this matter in some detail and to make recommendations, which may be useful to relevant stakeholders in New Zealand and in my own country, Jamaica.

### **What will participants be asked to do?**

You will be asked to sign a consent form to show that you are aware of what the project involves and that you accept the invitation to participate in an interview. This interview may deal with various issues relating to the experiences of assistive computer technologies and their effects on employment for persons with visual impairment. However, you will only be asked to assist with provision of information specifically relating to your area of expertise.

The interviews will last about one hour, but may take a bit longer depending on the extent of questions you ask and the length of answers you provide.

### **Issues of privacy and confidentiality: how is confidentiality and privacy to be ensured?**

- No personal information will be passed on to any other person or agency.
- Data analysis will be undertaken and reported in such a way that information cannot be directly linked to you, without your permission.
- Material used to collect information will be kept in a secure place accessed only by the researcher and destroyed when it is no longer needed for the study.
- If any research assistants are hired to help transcribe data, they will sign an agreement to confidentiality.

### **Your rights as a participant**

You will be asked to complete a consent form before participating in this study. This form will outline your rights as a participant in this research.

- Your participation in this research is entirely voluntary. You have the right to decline any involvement.
- You have the right to refuse to answer any particular questions, and to withdraw from the study at any time.
- You have the right to ask any further questions that occur to you during the course of the study.
- If you decide to withdraw from the study, material collected from interviews will be destroyed or returned to you.
- You have the right to refuse to agree to the interview being audiotaped.
- You have the right to have the tape turned off at any time during the interview.
- Your participation will remain confidential to the researcher. That is, your information will be used in such a way that you will not be identified and is given on the understanding that your name will not be used under any circumstances, unless you give permission.
- A summary of the findings will be available to you at the completion of the research, on request. Tick the box on the consent form if you would like a report of the research.

### **You will need to:**

- Contact the researcher directly if you are interested in participating, by phoning Wendy Williams at 350-6169 and agree over the telephone, in writing, or in person, to what is stated in the consent form.

This study has received approval from the Massey University Institute of Development Studies Departmental Human Ethics Committee.

Thank you for considering this request.

If you have any questions regarding any aspect of the research please do not hesitate to contact me or one of my supervisors.

Wendy Williams  
Principal Researcher

## **CONSENT FORM FOR SPECIALIST (KEY INFORMANT) INTERVIEWS**

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions. If I decide to withdraw from the study, material collected from interviews will be destroyed or returned to me.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission.

The information will be used only for this research and publications arising from this research project.

I agree/do not agree to the interview being audiotaped.

I also understand that I have the right to ask the audiotape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed:

Name:

Date:

Tick here if you would like a summary of the research findings.

Tick here if you would like to be referred to by your own name in the thesis.

## **Appendix 7: Information Sheet for Survey**

(also available on cassette or diskette)

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

#### **Who is doing this research?**

My name is Wendy Williams. I am a PhD student in the Institute of Development Studies at Massey University in Palmerston North. My contact details are as follows:

Wendy Williams  
Email: wendyew@xtra.co.nz  
Tel: 64 6 350-6169

Postal address:  
Colombo Hall, Massey University  
Private Bag 11222  
Palmerston North  
New Zealand

My supervisors are:

Professor John Overton  
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Email: j.d.overton@massey.ac.nz  
Tel: 64 6 356-9099 ext 2504

Professor Steven J. LaGrow  
School of Health Sciences  
Email: s.j.lagrow@massey.ac.nz  
Tel: 64 6 356-9099 ext. 2248

Associate Professor Peter Beatson  
School of Sociology, Social Policy, and Social Work  
Email: p.beatson@massey.ac.nz  
Tel: 64 6 356-8251

I have worked as a volunteer in the disability sector for ten years in my home country, Jamaica. I am almost totally blind and am currently experiencing significant deterioration in my vision. About six years ago, I became interested in assistive computer technology (ACT) and the ways in which it could help people like me to access employment.

#### **What is this research about?**

Through this study I would like to find out whether or not ACT is affecting employment for blind and visually impaired people in New Zealand. I am therefore interested in the extent to which it is enabling these persons to obtain and remain in satisfactory jobs that allow them to independently provide for themselves. I also want to find out the ways in which computer technology affects quantitative aspects of employment such as the number and types of occupations, employment status, job acquisition rates and job opportunities, as well as qualitative aspects of work such as skills, job satisfaction, productivity, training, career advancement and employability for the visually impaired. In addition, I want to assess the extent to which disability policy and practices promote or

hinder the potential of assistive computer technology to facilitate employment for blind and visually impaired persons and finally, to identify the policy implications of the findings for New Zealand.

The study will contribute to academic research and policy formation by systematically documenting the employment experiences of persons with visual impairment. It is also expected to increase the amount of information available to other researchers and policy-makers in New Zealand. Your participation would be very helpful to enable me to provide sound, accurate and reliable data, which may be used to inform policies to improve access to opportunities for persons with visual impairments.

### **How did this research come about?**

As a consequence of my worsening vision, I became particularly interested in ways to improve access to information and employment opportunities for myself and other persons with similar impairments. I discovered that not much information was available regarding the potential impact of computer technologies, ACT, and employment for us. Hence, there was not much information for governments and organisations to use to design strategies and policies to assist us to harness any potential that might reside in these technologies. I was offered a scholarship to participate in the Development Studies Programme at Massey University. This is allowing me to look at this matter in some detail and to make recommendations, which may be useful to relevant stakeholders in New Zealand and in my own country, Jamaica.

### **What would I do if I offer to participate?**

You are invited to complete a questionnaire regarding your everyday experiences with ACT and work. The survey can be done by email, telephone, large print or cassettes, with the researcher's help or by yourself. It should take about one hour to fill in the forms, a bit longer if I do it with you over the telephone or in your home.

### **Issues of privacy and confidentiality: how is confidentiality and privacy to be ensured?**

- Data collected will not identify you by name. A code number will be used to identify you on the questionnaire and not your name. This will help to keep all information anonymous. My supervisors and I will be the only ones with access to the survey information and this will be locked away securely, with no need for your name to be attached to any of the assessments, surveys or questionnaires.
- No personal information will be passed on to any other person or agency such as the Royal New Zealand Foundation for the Blind, EEO Trust, Workbridge or any other agency. They will, of course, be interested in the overall results of the study, but none of your private information will be made available to anyone other than the researcher.
- Data analysis will be undertaken and reported in such a way that information cannot be directly linked to you.
- Material used to collect information will be kept in a secure place accessed only by the researcher and destroyed when it is no longer needed for the study.

- If any research assistants are hired to help input data, they will sign an agreement to confidentiality.

### **Your rights as a participant**

You will be asked to complete a consent form before participating. It outlines your rights as a participant in this research.

- Your participation in this research is entirely voluntary. You have the right to decline any involvement.
- You can ask any questions about the research at any stage.
- You can refuse to answer any particular questions and withdraw from the research at any time.
- Your participation will remain confidential to the researcher. That is, your information will be used in such a way that you will not be identified and is given on the understanding that your name will not be used under any circumstances, unless you give permission.
- A summary of the findings will be available to you at the completion of the research, on request. Tick the box on the consent form if you would like a report of the research.
- You may also be asked to participate in a follow-up individual interview if you are selected from a sample of participants. Please indicate below if you would like to participate further in this research.
- If you agree to joint administration of the interview and survey questions this may be tape-recorded for double checking later.

### **You will need to:**

- Contact the researcher directly if you are interested in participating, by phoning Wendy Williams at 350-6169.
- Agree over the telephone, in writing, or in person, to what is stated in the consent form.
- Participate by filling in the forms and returning them to the researcher, or
- Complete the survey over the telephone or in person, with help from the researcher or research assistant.

This study has received approval from the Massey University Institute of Development Studies Departmental Human Ethics Committee.

Thank you for considering this request.

If you have any questions regarding any aspect of the research please do not hesitate to contact me or one of my supervisors.

Wendy Williams  
Principal Researcher

## **CONSENT FORM FOR SURVEY**

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions. If I decide to withdraw from the study, material collected from survey will be destroyed or returned to me.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission.

The information will be used only for this research and publications arising from this research project.

I also understand that I have the right to ask the audiotape to be turned off at any time during the survey.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed:

Name:

Date:

Tick here if you would like a summary of the research findings.

Tick here if you consent to participate in a follow-up interview, if you are selected.

## **Appendix 8: Information Sheet for Focus Group Discussion**

(also available on cassette or diskette)

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

#### **Who is doing this research?**

My name is Wendy Williams. I am a PhD student in the Institute of Development Studies at Massey University in Palmerston North. My contact details are as follows:

Wendy Williams  
Email: wendyew@xtra.co.nz  
Tel: 64 6 350-6169

Postal address:  
Colombo Hall, Massey University  
Private Bag 11222  
Palmerston North  
New Zealand

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Professor John Overton  
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Tel: 64 6 356-9099 ext 2504

Professor Steven J. LaGrow  
School of Health Sciences  
Email: s.j.lagrow@massey.ac.nz  
Tel: 64 6 356-9099 ext. 2248

Associate Professor Peter Beatson  
School of Sociology, Social Policy, and Social Work  
Email: p.beatson@massey.ac.nz  
Tel: 64 6 356-8251

I have worked as a volunteer in the disability sector for ten years in my home country, Jamaica. I am almost totally blind and am currently experiencing significant deterioration in my vision. About six years ago, I became interested in assistive computer technology (ACT) and the ways in which it could help people like me to access employment.

#### **What is this research about?**

Through this study I would like to find out whether or not ACT is affecting employment for blind and visually impaired people in New Zealand. I am therefore interested in the extent to which it is enabling these persons to obtain and remain in satisfactory jobs that allow them to independently provide for themselves. I also want to find out the ways in which computer technology affects quantitative aspects of employment such as the number and types of occupations, employment status, job acquisition rates and job opportunities, as well as qualitative aspects of work such as skills, job satisfaction,

productivity, training, career advancement and employability for the visually impaired. In addition, I want to assess the extent to which disability policy and practices promote or hinder the potential of assistive computer technology to facilitate employment for blind and visually impaired persons and finally, to identify the policy implications of the findings for New Zealand.

The study will contribute to academic research and policy formation by systematically documenting the employment experiences of persons with visual impairment. It is also expected to increase the amount of information available to other researchers and policy-makers in New Zealand. Your participation would be very helpful to enable me to provide sound, accurate and reliable data, which may be used to inform policies to improve access to opportunities for persons with visual impairments.

### **How did this research come about?**

As a consequence of my worsening vision, I became particularly interested in ways to improve access to information and employment opportunities for myself and other persons with similar impairments. I discovered that not much information was available regarding the potential impact of computer technologies, ACT, and employment for us. Hence, there was not much information for governments and organisations to use to design strategies and policies to assist us to harness any potential that might reside in these technologies. I was offered a scholarship to participate in the Development Studies Programme at Massey University. This is allowing me to look at this matter in some detail and to make recommendations, which may be useful to relevant stakeholders in New Zealand and in my own country, Jamaica.

### **What will participants be asked to do?**

You will be asked to sign a consent form to show that you are aware of what the project involves and that you accept the invitation to participate in a focus group discussion. You will be required to participate in a discussion, in a group setting of no more than 10 participants. This discussion will include opinions and experiences relating to the use of ACT, employment, and the ways in which it affects work and employment for persons with visual impairment. You will also participate in finalising a draft questionnaire, which will form the basis of a survey to be presented to a wider group of persons with visual impairment in New Zealand. The discussion may last about 2 hours, but may be a bit longer depending on the extent of questions you ask and the length of answers you provide.

This will be audio and videotaped if acceptable.

### **Issues of privacy and confidentiality: how is confidentiality and privacy to be ensured?**

- Each participant will be required to sign a consent and confidentiality form in which he or she agrees not to disclose information regarding their participation or the proceedings of the focus group. Data collected will not identify you by name.
- No personal information will be passed on to any other person or agency.

- Data analysis will be undertaken and reported in such a way that information cannot be directly linked to you.
- Material used to collect information will be kept in a secure place accessed only by the researcher and destroyed when it is no longer needed for the study.
- If any research assistants are hired to help videotape, record the group discussion or transcribe data, they will sign an agreement to confidentiality.

### **Your rights as a participant**

You will be asked to complete a consent form before participating. It outlines your rights as a participant in this research.

- Your participation in this research is entirely voluntary. You have the right to decline any involvement.
- You have the right to refuse to answer any particular questions, and to withdraw from the study at any time.
- You have the right to ask any further questions that occur to you during the course of the study.
- If you decide to withdraw from the study, material collected from interviews will be destroyed or returned to you.
- You have the right to refuse to agree to the interview being audio or videotaped.
- You have the right to have the audio and/or videotape turned off at any time during the interview.
- Your participation will remain confidential to the researcher. That is, your information will be used in such a way that you will not be identified and is given on the understanding that your name will not be used under any circumstances, unless you give permission.
- A summary of the findings will be available to you at the completion of the research, on request. Tick the box on the consent form if you would like a report of the research.

### **You will need to:**

Contact the researcher directly if you are interested in participating, by phoning Wendy Williams at 64 6 350-6169 or email: [wendyew@xtra.co.nz](mailto:wendyew@xtra.co.nz) and agree over the telephone, in writing, or in person, to what is stated in the consent form

This study has received approval from the Massey University Institute of Development Studies Departmental Human Ethics Committee.

Thank you for considering this request.

If you have any questions regarding any aspect of the research please do not hesitate to contact me or one of my supervisors.

Wendy Williams  
Principal Researcher

## **CONSENT FORM FOR FOCUS GROUP DISCUSSION**

### **Assistive Computer Technologies and the Employment Experiences of Visually Impaired People in New Zealand**

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions. If I decide to withdraw from the study, material collected from interviews will be destroyed or returned to me.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission.

I understand and agree that I will not disclose any information regarding the nature of participation, nor the details of the discussion from the focus group outside the event.

The information will be used only for this research and publications arising from this research project.

I agree/do not agree to the interview being audio or videotaped.

I also understand that I have the right to ask for the audiotape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed:

Name:

Date:

Tick here if you would like a summary of the research findings.

## Appendix 9: Survey Questionnaire

### Assistive Computer Technologies (ACT) and Vocational Experiences of Blind and Visually Impaired New Zealanders

Wendy E. Williams  
PhD Student Researcher

- Please note that by completing this questionnaire you are consenting to participation in this survey. Your information will be kept confidential and your details will not be reported in such a way that it can be linked directly to you.
- This questionnaire consists of two types of questions, those where choices are offered and others where they are not. Please put an X immediately before the option or options that best suit you where you may be asked to make a choice among a range of given options.
- Please return the completed questionnaire to me under confidential cover. You may direct any queries and concerns to me at email: [wendyew@xtra.co.nz](mailto:wendyew@xtra.co.nz) or phone 06 350 6169.

Thank you for your participation.

#### SECTION A. GETTING TO KNOW YOU

The questions in this section are designed to help me to know something about the general characteristics of the people who participate in this survey. This is important as the results may vary for different kinds of people.

##### A1. Are you?

Male	1
Female	2

##### A2. Which age group do you belong to?

15 and under	1
16 - 25	2
26 - 35	3
36 - 45	4
46 - 55	5
56 - 65	6

##### A3. Which ethnic group do you belong to?

New Zealander of European descent	1
New Zealander of Maori descent	2
New Zealander of Pacific Island descent	3
Other, please indicate	4

**A4. Are you a registered member of the Royal New Zealand Foundation for the Blind?**

- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |

**A5. Do you use any of the following equipment or services as a result of your visual impairment? You may tick as many as you use.**

- |   |    |
|---|----|
| Large print reading materials                       | 1  |
| Braille reading materials                           | 2  |
| Audio (talking books) reading materials             | 3  |
| Readers   | 4  |
| Closed circuit television                           | 5  |
| Glasses or contact lens                             | 6  |
| Magnifiers  | 7  |
| Tape recorders                                      | 8  |
| White cane  | 9  |
| Guide dog   | 10 |
| No special equipment or service                     | 11 |
| Other low technology adaptive equipment or services | 12 |

**A6. What other impairment(s), if any, do you have?**

**A7. Do you presently work:**

- |   |   |
|---|---|
| For pay, profit or income                           | 1 |
| Without pay, profit or income (i.e. as a volunteer) | 2 |
| Both  | 3 |
| Don't work  | 4 |

**IF YOU SELECTED THE "DON'T WORK" OPTION,**

**A8. Are you currently seeking, or preparing yourself to get, a job?**

- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |

**A8b. Please explain.**

**SECTION B: ASSISTIVE COMPUTER TECHNOLOGY**

In this section, I am interested in information relating to your use of computer technologies. This section should be completed by all participants in the study. The term assistive computer technologies or ACT refers to any aids and devices which are computer based or computer driven, and are helpful to blind and visually impaired persons. These are of two types: 1. those which are specially adapted for use by persons who are blind and visually impaired and 2. those which, though not specially adapted, can be considered ACT as they contain inherent features which assist you, e.g. regular office scanners, the internet, email etc.

Some questions may require you to place an X beside the option or write in answers in spaces provided.

**B1. What computer technology(-ies) for blind and visually impaired persons, if any, are most helpful to you? For example, screen readers, computerised braille systems etc.**

**B2. Of what use are any of these to you in your work?**

**B3. What, if any, are the other types of computer technologies (apart from those designed especially for blind and visually impaired persons) that you find helpful to you in your work?**

**B4. Do you use computer technologies at home in support of your usual work?**

Yes	1
No	2

**B5. Who provided the computer technology (for blind and visually impaired persons) you currently use in your work?**

Myself	1
My employer	2
My friend and/or family	3
Project Enable / Equipment Management Services	4
Other, please specify	5

**B6. Which computer technologies or related services, if any, do you need but do not have?**

**B6b. Why don't you have this equipment or service(s)?**

It is only needed occasionally	1
It is not available	2
Your condition is not serious enough	3
You do not know where to get it	4
It is too costly	5
You cannot afford it	6
You applied for financial help to get it but were not eligible	7
You did not know you could apply for financial help or where to apply	8
You have never been assessed	9
Another reason, please specify	10

## **SECTION C: COMPUTER TECHNOLOGY AND YOUR WORK PERFORMANCE**

This section is designed to find out how computer technology has affected or is affecting your performance.

Please put an X immediately before the option that reflects your opinion. When there are no choices offered or your choice requires an explanation then place it between the brackets.

### **Computer technology has:**

#### **C1. Reduced the time taken to complete tasks**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

#### **C2. Improved the quality of my work**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

#### **C3. Increased the range of work-related tasks I can do**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

#### **C4. Reduced the quantity of tasks I can do**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

#### **C5. Increased my level of satisfaction with my work**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

**C6. Increased my level of independence in relation to work and employment**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

**C7. Improved my access to work/career-related information**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

**C8. Improved my participation with work-related / professional groups or organisations**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

**C9. I could do my work without computer technology**

Strongly disagree	1
Disagree	2
No opinion	3
Agree	4
Strongly agree	5

**C10. What do you see as the major benefits of using computer technologies in your work?**

**C11. What, if any, are the problems you encounter with the use of ACT in your work?**

**C12. Are there ways in which you could be further enabled in your work with computer technologies?**

## **SECTION D: TECHNOLOGY TRAINING**

The following questions relate specifically to training in the use of computer technologies.

### **D1. Through what medium did you mainly receive / are you receiving training in the use of computer technologies?**

Classes at (state name of organisation / training programme)	1
Myself	2
From equipment seller	3
Co-worker / friend	4
Other, please specify	5

### **D2. What were the main reasons which influenced your decision to undergo training in computer technology use?**

### **D3. Was / is the training that you received / are receiving sufficient to enable you to utilise computer technologies in your work?**

Yes	1
No	2

### **D3b. If no, please explain?**

## **SECTION E: CURRENT EMPLOYMENT**

The questions in sections E and F are attempting to find out about your current working situation, whether you work for pay, profit or income and/or as volunteer. You may answer only those sections of the questions that best reflect your situations, for example, those who do not work as volunteers should ignore sections of questions relating to voluntary jobs.

Conversely, those who work as volunteers only, skip responses for paid, profit or income work. And those who do both should complete all parts of the question. Those who are actively seeking or are preparing themselves to get a job should complete Section G of the questionnaire.

Please put an X immediately before the option or options that best suit you where you may be asked to make a choice among a range of given options. When there are no choices offered or your choice requires an explanation then place it between the brackets.

### **E1. What is your job title? Give examples such as teacher, lawyer, secretary, gardener.**

### **E2. Approximately how many hours per week do you spend in your paid work?**

10 hrs and less	1
Up to 20 hrs	2
Up to 30 hrs	3
Up to 40 hrs	4
Over 40 hrs	5

**E3. Please give a brief description of your main duties (or activities and tasks) which currently require the use of computer technologies.**

**E4. Approximately what percentage of your PAID job functions requires computer technologies?**

- |            |   |
|------------|---|
| 0%         | 1 |
| Up to 25%  | 2 |
| Up to 50%  | 3 |
| Up to 75%  | 4 |
| Up to 100% | 5 |

**E5. Where do you carry out most of your duties in your paid job?**

- |                |   |
|----------------|---|
| At home        | 1 |
| Away from home | 2 |

**E6. Which of the following best describes the status of your employment in your paid job?**

- |   |   |
|---|---|
| Permanent   | 1 |
| Temporary   | 2 |
| Self employed   | 3 |
| Seasonally (predictable, regular periods during the year) | 4 |
| Casually (as the jobs come along)                         | 5 |
| Other, please specify                                     | 6 |

**E7. In which of the following sectors do you work?**

- |                       |   |
|-----------------------|---|
| Public                | 1 |
| Private profit-making | 2 |
| Private non-profit    | 3 |
| Other, specify        | 4 |

**E8. How long have you been working in this job?**

- |                    |   |
|--------------------|---|
| 2 years and under  | 1 |
| Up to 5 years      | 2 |
| Up to 10 years     | 3 |
| More than 10 years | 4 |

**E9. Are you satisfied with your paid job(s)?**

- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |

**E9b. Why / Why not?**

## **SECTION F: VOLUNTARY WORK**

This section is intended to help me to find out about voluntary work. Please complete if you currently undertake any work on a voluntary basis.

**F1. For those who work on a voluntary basis, what do you work as?**

**F2. Approximately how many hours per week do you spend in your voluntary work?**

10 hrs and less	1
Up to 20 hrs	2
Up to 30 hr	3
Up to 40 hrs	4
Over 40 hrs	5

**F3. What are the main duties (or activities and tasks) for which you use computer technologies in your voluntary work?**

**F4. Approximately what percentage of your voluntary duties requires the use of computer technologies?**

0	1
Up to 25%	2
Up to 50%	3
Up to 75%	4
Up to 100%	5

**F5. Where do you carry out most of your duties in your voluntary work?**

At home	1
Away from home	2

**F6. How long have you been working in this job?**

2 years and under	1
Up to 5 years	2
Up to 10 years	3
More than 10 years	4

**F7. Are you satisfied with your voluntary job(s)?**

Yes	1
No	2

**F7b. Why / Why not?**

**SECTION G: JOB SEEKERS AND WORK PREPARATION**

This section is relevant to those persons who are not currently engaged in paid or voluntary work, but are seeking or preparing to get jobs.

**G1. For those who are seeking or are preparing for work, what is your current occupation?**

**G2. Approximately how many hours per week do you spend in your current occupation?**

10 hrs and less	1
Up to 20 hrs	2
Up to 30 hr	3
Up to 40 hrs	4
Over 40 hrs	5

**G3. What are the main purposes or activities and tasks for which you use computer technologies?**

**G4. Approximately what percentage of these require computer technologies?**

0	1
Up to 25%	2
Up to 50%	3
Up to 75%	4
Up to 100%	5

**G5. Where do you mainly use computer technology?**

At home	1
Away from home	2

**G6. How long have you been unemployed?**

2 years and under	1
Up to 5 years	2
Up to 10 years	3
More than 10 years	4

**G7. Are you satisfied with your unemployment situation?**

Yes	1
No	2

**G7b. Why/Why not?**

## **SECTION H: WORK EXPERIENCE**

The following questions are attempting to find out about your work experience and should be completed by all participants. I am interested any kind of work you may have done on a pay, profit or income basis, and/or voluntary. You may report on any voluntary work you have done. You should attach the word "voluntary" to indicate that you are referring to these jobs.

**H1. What job(s), if any, have you held in the past?**

**H2. What if any, are the problems you encountered, or are encountering, in accessing work as a result of your visual impairments?**

**H3. What are the main factors, if any, that assisted you (or are assisting you) to access work?**

**H4. How, if at all, did knowledge and use of computer technologies assist, or are they assisting you, to access work?**

## SECTION I: ABOUT YOUR INCOME AND EDUCATION

### 11. What, if any, is/are your main source(s) of income?

Salary / wage	1
Self-employment	2
Investment income	3
ACC payments	4
Invalids benefit	5
Other NZ government pensions and benefits for people with disabilities	6
No income sources	7
Other income sources, specify	8

### 12. Into which of the following (income groupings in \$) does your yearly income, before tax, fit?

1,000 and under	1
1,001 - 5,000	2
5,001 - 10,000	3
10,001 - 15,000	4
15,001 - 20,000	5
20,001 - 25,000	6
25,001 - 30,000	7
30,001 - 35,000	8
35,001 - 40,000	9
40,001 - 45,000	10
45,001 - 50,000	11
50,001 and above	12

### 13. Do you consider your present income adequate to independently support yourself?

Yes	1
No	2

### 13b. Why / Why not?

### 14. What is your highest level of qualification?

School certificate	1
Bursary	2
Tertiary certificates and/or diplomas	3
First degrees e.g. BA, BSc	4
Postgraduate certificates, diplomas, masters, PhD	5
Other, specify	6

### 15. What is / are your area(s) of training?

## **SECTION J: COMPUTER TECHNOLOGY AND EMPOWERMENT**

This section is aimed at getting your opinion with regard to the impact of computer technologies on your work / employment experiences.

**J1. How, if at all, have computer technologies assisted, or are assisting you in furthering your work or career related training or education?**

**J2. In what ways, if any, has your income been affected by your ability to use computer technologies?**

**J3. In what way, if any, has your use of computer technologies affected your position in your organisation?**

**J4. What if any, are the opportunities for employment open to you through the use of computer technologies?**

**J5. What, if any, do you see as the major barriers to your ability to access the opportunities that may be presented to you through the use of computer technologies?**

**You have come to the end of this questionnaire. Thank you for your interest and help. Are you willing to provide a follow-up interview for this research?**

**Yes / No**

**END OF QUESTIONNAIRE**

## **Appendix 10: Interview Schedule for Personal Interviews**

### **Assistive Computer Technologies (ACT) and Vocational Experiences of Blind and Visually Impaired New Zealanders**

This schedule served as a guide for interviews which were conducted with study participants. The order of the schedules and questions were modified according to responses offered by participants.

#### **PRELIMINARIES**

About 20 minutes was spent in introductions, explanations and discussion of the general focus of the study and the purpose of the interview.

Confidentiality was emphasised here. The likely duration of the interview was indicated. The participant was informed that there was a core set of issues that was covered in this interview; they could however highlight what they felt was relevant for them in their circumstances.

#### **EMPLOYMENT SITUATION**

- Can we begin by exploring your current employment situation in more depth? Your:
  - Job title
  - Main duties and responsibilities
  - How you came by this job
  - Your employment basis, full time part-time etc.
  
- Please give a detailed outline of your employment history.
  - i. Which jobs have you held in the past?
  - ii. What problems did you encounter in finding jobs?
  - iii. What factors assisted you?
  
- Are you satisfied with your employment situation? Please give reasons for your answer.
  
- If you are job hunting,
  - i. Why are you seeking jobs?
  - ii. How do you go about seeking jobs?
  - iii. How is the job-hunting proceeding, e.g. what problems are you encountering?

## **VOLUNTARY WORK**

- Are you involved in voluntary work?
  - i. What do you work as?
  - ii. What is the nature of the work that you do?
  - iii. How many hours per week do you spend on your voluntary job?

## **VISUAL IMPAIRMENT**

- If you don't mind me asking, please tell me how you came to have a visual impairment? What is the extent of your visual impairment, i.e. how well do you see? (probe regarding visual acuity or HM, FC, LP etc.)

## **GENERAL EDUCATION AND QUALIFICATION**

- Please give a brief outline of your education and qualifications

## **ACT TRAINING**

EXPLANATORY NOTE: In this section, I am interested in information relating to your use of computer technologies. The term assistive computer technologies or ACT refers to any aids and devices which are computer based or computer driven, and are helpful to blind and visually impaired persons. These are of two types: 1. those which are specially adapted for use by persons who are blind and visually impaired and 2. those which, though not specially adapted, can be considered ACT as they contain inherent features which assist you, e.g. regular office scanners, the internet and email.

- Please tell me how and why you became involved in computer technologies in general, and those specially designed for persons with visual impairment in particular.
- Do you feel that the training you received was appropriate for your needs? Can you explain your answer?
- Do you feel that ACT training has affected your ability to gain / retain employment?
- If you have used assistive technologies for any kind of education purposes in the past, please provide details of the ways in which ACT and/or other mainstream computer technologies have assisted or are assisting you in furthering your education.

## **ACT AND YOUR WORK**

- What types of computer technology(ies) is/are most helpful to you?
- What, if anything do you see as the major benefits of ACT in your work?
- What, if any, are the major problems associated with your use of computer technologies in your work?

- Have you achieved your employment aspirations?
- Are there ways in which you could be further enabled in your employment, by the use of ACT and other types of computer technologies?

### **INCOME**

- How much do you earn per year before tax? What, if any, is your main source of income?
- Do you consider your present income adequate to independently meet your needs?
- In what ways, if any, has your ability to use computer technologies affected your income?

### **ACT AND EMPOWERMENT**

- In your opinion, what, if any, are the opportunities for employment open to you by ACT and/or other computer technologies?
- What do you see as the possible hindrances to your ability to access the opportunities that may be presented to you by computer technologies?
- How do you think that these hindrances can be eliminated or minimised to enable you to access these opportunities?
- In your opinion, in what ways, if at all, has ACT affected your level of independence in relation to work and employment?
- How, if at all has computer technologies affected your ability to access job / work related information?
- From your perspective, has ACT or CT affected your participation in work-related / professional groups or organisations? You may include email listings, trade unions etc.
- Are there any other issues that we have not covered relating to this topic that you think are extremely important? Feel free to raise and discuss these.
- Just some more details about you: your gender, ethnic group, age etc.

**We have now come to the end of the interview.  
Thank you very much for your time.**

## Appendix 11: List of Personal Interviews

**Table 35: List of Personal Interviews**

Males		Females	
Name (Pseudonym)	Date	Name (Pseudonym)	Date
Ben	7 February 2001	Birgitte	9 February 2001
Bob	15 January 2001	Buzzeaxena	9 February 2001
Brad	24 March 2001	Carla	6 February 2001
Brian	21 April 2001	Claudia	3 April 2001
Charles	28 February 2001	Denise	24 April 2001
Daniel	18 January 2001	Donna	13 February 2001
Dave	20 February 2001	Juanita	7 May 2001
Doug	10 February 2001	Kira	24 January 2001
Greg	3 March 2001	Laura	13 June 2001
Jack	20 March 2001	Mandy	16 February 2001
James	14 February 2001	Margie	21 February 2001
Jason	19 March 2001	Marie	21 February 2001
Jeff	15 February 2001	Muriel	23 February 2001
Jerry	12 April 2001	Nadia	3 April 2001
Joseph	15 February 2001	Rhona	13 February 2001
Joshua	22 March 2001	Roz	21 February 2001
Jude	5 June 2001	Simone	23 February 2001
Luke	23 April 2001	Tanya	17 April 2001
Mark	9 February 2001	Tasha	24 April 2001
Marlon	26 February 2001	Tamika	3 April 2001
Martin	17 March 2001		
Matthew	27 February 2001		
Mike	19 April 2001		
Nick	14 February 2001		
Raymond	16 March 2001		
Reggie	28 February 2001		
Rudy	20 April 2001		
Shawn	22 February 2001		
Steve	27 February 2001		

## Appendix 12: List of Specialist (Key Informant) Interviews

Table 36: List of Specialist Interviews

Name	Job Title	Organisation	Date
Palmerston North	Focus Group	-	27 January 2001
Abel, Martine	Communications Instructor	RNZFB	9 February 2001
Ali, Shirween	Supervisor, Adaptive Communication and Daily Living Skills	RNZFB	13 February 2001
Barclay, Paul	Vocational Advisor	RNZFB	19 April 2001
Bryan, Thomas	Senior Communications Adaptive Technology Instructor	RNZFB	20 June 2001
Burgess, Barry	Technology Salesman / Trainer	Pulse Data International Ltd	23 April 2001
Carroll, Genevieve	Vocational Employment Advisor	RNZFB	19 June 2001
Farmer, Jill	Manager / Teacher	Manurewa Resource Centre	13 February 2001
Fowler, Gill	Disabilities Services Coordinator	Canterbury University	24 April 2001
Kelly, Ross	Rehabilitation Analyst	ACC	28 June 2001
Hunt, Robyn	Chairperson	Workbridge	21 June 2001
Miller, Karen	Assistant Disability Coordinator	Todd Centre, Auckland University	14 February 2001
Mosen, Jonathan	Adaptive Technology Consultant	Out Of Sight Ltd	24 March 2001
Ong, Thean Li	Adaptive Communications Instructor	RNZFB	15 February 2001
Pivac, Ivan	Manager / Director	Zabonne Ltd	18 February 2001
Sinclair, Vic	Former National Vocational Advisor (Technology)	RNZFB	13 Jun 2001
Sloane, Morris	BrailleNote Product Manager	Pulse Data International Ltd	23 April 2001
Small, Judy	Placement Coordinator	Workbridge	6 February 2001
Taylor, Carmen	Vocational Employment Advisor	RNZFB	19 February 2001
Wilkinson, Rose	National Administrator	ABC	20 June 2001

## Appendix 13: Areas of Training among 81 Survey Participants

**Table 37: Areas of Training among 81 Survey Participants**

Areas of Training	No. of People	Percent
Academic	35	43.2
Business and Commerce	24	29.6
Computing	24	29.6
Clerical, Typist, Telephonist	23	28.4
Health	18	22.2
Rehabilitation, Counselling and Social Work	15	18.5
Accounting and Economics	8	9.9
Engineering and Technical	8	9.9
Sales / Marketing / Public Relations	6	7.4
Agriculture / Horticulture	4	4.9
Elementary	4	4.9
Legal	4	4.9
Braille	3	3.7
Culinary / Floristry	3	3.7
Theology	2	2.5
Journalism	2	2.5
Sports	1	1.2
Real Estate	1	1.2

(81 people, multiple areas of training)

## Appendix 14: List of Participants' Paid Occupations

Table 38: List of Participants' Paid Occupations

<b>Jobs</b>	<b>Number of People</b>
Acupuncturist	1
Consultant	2
Telephone Operator / Clerk / Administrator	5
Benefit Reviewer	1
Case Manager	1
Cleaner	2
Committee Member	1
Coordinator	1
Court Officer / Law Clerk	2
Factory Worker / Assembly Packer	1
Farmer / Farm Worker	4
Fundraising Assistant	1
Lawyer	1
Lecturer	3
Library Assistant	1
Managers / Company Director	11
Masseur	2
Needs Assessor	4
Office Assistant	1
Physiotherapists	2
Placement Coordinator / Vocational and Employment Advisors	5
Potter	1
Proofreader	1
Public Education Officer	1
Recording Engineer / Audio Producer	2
Teacher / Instructor	9
Sales, Market, Customer Services	5
Sports Opportunity Officer	1
Writer	1

## Appendix 15: List of Participants' Voluntary Occupations

**Table 39: List of Participants' Voluntary Occupations**

Jobs	Number of People
Board / Committee Member	5
Chairperson / President	9
Club Captain / Tournament Director	2
Coordinator / Organiser	3
Counsellor / Peer Support	3
Clerical / Administrator	3
Deputy Chairperson / Vice President	1
Instructor / Teacher	3
Legal Adviser	1
Member (of NGO)	1
Manager	1
Pastor	1
Political Activist / Advocacy	2
Public Speaker	2
Recording Engineer	1
Secretary	4
Teacher	1
Treasurer	4
Trustee	2
Tour Guide	1

## Appendix 16: Purposes of ACT in Paid and Voluntary Work

Table 40: Purposes of ACT in Paid and Voluntary Work

Purposes	Number of People		Percent	
	Paid	Voluntary	Paid	Voluntary
Planning	4	-	6.5	-
Correspondence	22	21	35.5	48.8
Budgeting and costing	6	3	9.7	7.0
Research and information access	15	11	24.2	25.6
Report, word-processing and document preparation	17	17	27.4	39.5
Training	8	1	12.9	2.3
Technology services	4	2	6.5	4.7
Stock management	2	-	3.2	-
Product management and services	8	1	12.9	2.3
Record-keeping and database management	13	4	21.0	9.3
Data entry, accounts receivable and payable	7	4	11.3	9.3
Advocacy, placement and case management	12	5	19.4	11.6
Sales, service and product advice / information	15	6	24.2	14.0
Meeting and note-taking	8	15	12.9	34.9
Unspecified management / administration	8	-	12.9	

(62 paid workers, 43 voluntary workers, multiple purposes)

## **Appendix 17: ACT and Income Indicators of Empowerment**

Income was important as it represents tangible evidence of empowerment in terms of how social resources are allocated and forms the basis on which negotiation for power can begin (Baldwin 1989, Poggi 2001:18-19). It was important for us to consider this as an indicator of empowerment for blind people as, according to the literature, they supposedly have lesser access to income and wealth than their sighted peers (UNDP 1993).

From Table 6 in Chapter 5 (p.141) we noted that blind people received modest levels of income. Furthermore, from both interview and survey we found that most blind and visually impaired people received some form of income, mostly from employment and welfare payment sources, as presented in Table 41 below.

**Table 41: Income Source**

<b>Income Source</b>	<b>No. of People</b>	<b>Percent</b>
Salary / wage	51	59.3
Invalids' benefit	50	58.1
Self-employment	17	19.8
Other NZ pensions and benefits for people with disability	9	10.5
Investment income	8	9.3
ACC payment	2	2.3
Other	2	2.3
No income source	1	1.2

(85 people, multiple responses)

Blind and visually impaired people reported that they were largely satisfied with their current income status. The majority of the 86 people (54, or 62.8 percent) reported that they were satisfied with their current income. A smaller minority of people (32, or 37.2 percent) were dissatisfied with their current income.

Of the 53 people who explained why their incomes were satisfactory, the majority (42, or 79.2 percent) gave responses indicating that they thought their income was just enough

for them to make ends meet. A smaller number (11, or 20.8 percent) reported that their income enabled them to live comfortably.

Among those people who indicated that their income was unsatisfactory, the two main reasons for their dissatisfaction were the inability to meet their everyday personal needs on the one hand and their impairment-related needs on the other. Of those 30 people who explained why they were dissatisfied, the majority (18, or 60 percent) reported that their income did not cover important personal and other everyday household needs. This was followed by 10 people (33 percent) who noted that their income did not meet their disability-related needs. Of less importance was the feeling that some people were not being appropriately remunerated for their jobs, with a mere two people, or 6.7 percent of participants, noting this as their reason for income dissatisfaction.

Computer technology did not appear to have convincingly affected the income of participants, as shown in Table 42 below. The majority of the 85 people who responded to this question (51.8 percent) noted that technology had no effect on their income. This however was not a large majority and overall it appeared that computers did indeed have some impact, in the minds of a large minority of participants.

**Table 42: Technology Effects on Income**

<b>Effects on Income</b>	<b>No. of People</b>	<b>Percent</b>
None	44	51.8
Created new income	18	21.0
Increased income	9	10.7
Maintain sources of income	6	7.1
Limited / reduced income	5	5.9
Unsure	2	2.4
Loss of potential income	1	1.2
<b>Total</b>	<b>85</b>	<b>100.0</b>

These findings were a little surprising because of our expectations from the literature, reported elsewhere in this thesis. Levels of income may be explained by the existence of welfare and blind invalids' benefit payments, which often complemented income from other sources for blind people. As was seen from their satisfaction responses, these sources enabled them to meet most of their basic needs. This same reason may also account for their overwhelming satisfaction with their current income.

The fact that the majority of people did not see a direct connection between ACT use and income was a little surprising because participants' reports in Chapter 7 had indicated a direct connection between ACT and access to jobs. It is possible that because computers are generally taken for granted as a feature of life it may be difficult to isolate the effects of ACT, although some participants did admit that it indirectly affected their income by allowing them to access work processes.

## Appendix 18: Perceived Barriers to Vocational Empowerment among 67 Survey Participants

**Table 43: Perceived Barriers to Vocational Empowerment among 67 Survey Participants**

Barriers to Employment	No. of People	Percent
Ignorance, prejudice and discrimination	23	34.3
Impairment	10	14.9
Transportation, mobility / independence and communication	9	13.4
Insufficient technical training	7	10.4
Funding and finance	7	10.4
Self-esteem, confidence and attitudes	7	10.4
Age	6	9.0
Technological changes	5	7.5
Agencies and programmes	5	7.5
Qualifications, training and experience	4	6.0
ACT awareness, access and use	3	4.5
Support for technology and compatibility	3	4.5
Cost of training and equipment	2	3.0
Physical environment / geographical location	2	3.0
Health	2	3.0

(67 people, multiple responses)

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