

The Impact of Computers on the Employment of People with Quadriplegia

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ABSTRACT

This thesis evaluates the role of computer technology in influencing the employment process of people with quadriplegia. It does this by developing a framework to identify the key junctions in the employment journey of this group. The framework is then given content following a detailed study of the literature from social analysis, law, economics, industrial relations, vocational rehabilitation and assistive technology. Policy options available to governments to enhance the employment outcomes for people with disabilities are identified, with a special focus on the development and evaluation of policies in Australia. Case studies are used to illustrate the role of computer technology in the various stages of the employment process for people with quadriplegia. Conclusions are then drawn regarding the role of computer technology in relation to other factors that influence the employment of people with quadriplegia, and the policy implications of these findings. The theoretical implications of the research are also described.

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CHAPTER ONE

INTRODUCTION

Preliminary

People with a disability have an inferior employment experience when compared with those without a disability. They have lower rates of labour force participation, they have higher levels of unemployment and they receive lower wages. There are many reasons for this. Some are to do with the disability of the person and its impact on their work potential and productivity. Others relate to the environment or context in which a person seeks employment. Numerous government policies have been developed in an attempt to ameliorate these disadvantages.

This thesis examines the employment process for people with disabilities, with particular focus on those with quadriplegia. It seeks to identify the factors that shape their employment journey, from their decision to seek employment right through to the attainment of successful, enduring employment outcomes. In particular, the role of computer technology in the various stages of this process will be evaluated.

At the heart of this research are a number of case studies that explore the employment experiences of people with severe physical disabilities (quadriplegia arising from spinal injury or cerebral palsy). While several of these case studies analyse factors associated with successful employment outcomes, others portray difficulties and struggles. Each serves to expand our understanding of the complex factors that determine the employment experience of people with a disability.

The Nature of Disability

While it is common to speak of “people with a disability”, it is important to note that this label must be stretched to apply to a very wide group. Disabilities can be physical, cognitive, sensory, behavioural or psychological. They may be profound, severe, moderate or mild in their impact on the person’s life.

The employment experience of these different groups will vary substantially. When studies examine composite groups of people with a disability, there arises the danger that differences among these groups will be cancelled out. As we shall see in the next chapter, some of the best studies of the labour market experience of people with a disability have resulted when the analysis has focused on a single disability group.

Disability itself needs to be distinguished from *impairment* and *handicap*. This threefold framework, known as the International Classification of Impairments, Disabilities and Handicaps (ICIDH), was released by the World Health Organisation (WHO) in 1980. It has been used by most of the studies examined in this thesis. To give an example of how the ICIDH would apply in an actual situation, an injury to the optic nerve would be an *impairment*, the resulting loss of vision would be a *disability* and an inability to drive a car or read a book would be considered a *handicap*.

However it should be recognised that the WHO definitions have been heavily criticised in some quarters. Oliver, for example, argues that it is too closely aligned with the medical approach to disability and to a “personal tragedy” definition of disability that “has served to individualise the problems of disability and hence leave social and economic structures

untouched”.¹ He favours a twofold schema, of *impairment* and *disability*, with the latter defined as “the disadvantage or restriction of activity caused by a contemporary social organisation which takes no or little account of people who have physical impairments and thus excludes them from the mainstream of social activities”.² This places the emphasis for a person’s inability to participate in normal community activities on society rather than on the individual.

In May 2001 the WHO released a new set of definitions called the International Classification of Functioning, Disability and Health (ICF). This classification system is applied to the whole population, not just those with a disability. Its key concepts are Body Function and Structure, Activity and Participation. It appears to go a considerable way towards meeting the main objections to the earlier ICIDH, although it is too early to ascertain its level of acceptance.³

The Extent of Disability

Recently published data for NSW is the most recent Australian information on people with a disability.⁴ It combines data from the 1998 Australian Bureau of Statistics (ABS) *Survey of Disability, Ageing and Carers* with Commonwealth and New South Wales (NSW) government administrative data sets. A considerable amount of new information has been generated in this publication. It is used as the main Australian data for the discussion that follows and for subsequent Australian data requirements in this thesis.

¹ Oliver R., *The Politics of Disablement* 1990 Macmillan, London, 10.

² ibid 11.

³ For a brief outline of the ICF see Bray G. & Allison M., *Disability, New South Wales*, 2001, Australian Bureau of Statistics, Canberra, 2-3.

⁴ ibid.

Overall 19.3% of the NSW population have a disability. The rate is lower in Sydney compared with the rest of the State (17.7% v. 22.0%).⁵ Disability is strongly correlated with age, with around 6% of those under 35 having a disability, compared with 58% of those 65 and over.⁶

The ABS data makes a broad distinction between those with physical impairments (including sensory impairments) and those with mental and behavioural disorders. The former group includes 73% of people with a disability (but interestingly 70% of recipients of government services have an intellectual disability).⁷ Men are more likely than women to have a sensory, speech or intellectual disability, but less likely to have a physical impairment.⁸

The cause of the disability varied considerably. For 25% of those with a disability their main condition was brought on simply by “old age”. Accident or injury was the cause for 17% while 7% had a condition that was present at birth.⁹

The type of impairment affected the severity of restriction faced by the person involved. Those with head injury, stroke, psychological or intellectual impairment were most likely to have a profound or severe restriction.

The data describes the diverse range of needs stemming from the nature and severity of a person’s disabilities. It so doing it confirms the importance, wherever possible, of analysing the situation of people with a disability in a way that acknowledges and takes account of these differences.

⁵ ibid 15.

⁶ ibid 16.

⁷ ibid 19, 29.

⁸ ibid 19.

⁹ ibid.

Disability and employment

Not surprisingly the employment experience of people with a disability is inferior to those without a disability. This is reflected in a number of key indicators:

- ♦ A lower labour force participation rate. In 1998 the participation rate of people with a disability aged 15-64 was 50%, compared with 80% for people without a disability.¹⁰
- ♦ A higher unemployment rate. In 1998 people with a disability had an unemployment rate of 9.5% compared with 7.8% for those without a disability.
- ♦ A reduced worklife expectancy. For example, a 35 year old female without a disability has a worklife expectancy of 18.5 years. This compares with 13.1 years for those with a mild disability, 10.5 years for those with a moderate disability and 2.4 years for those with a profound disability.¹¹
- ♦ Restrictions in work options. In NSW 69% of people with a disability had an employment restriction. Around 40% of these were employed. Of this group 82% said they were restricted in the type of job they could do; 71% found it difficult to change jobs or get a better job; and 47% were restricted in the number of hours they could work.¹²

The changing labour market experience of people with disabilities in Australia is shown in Tables 1 and 2.

¹⁰ ibid 79.

¹¹ Athanasou J., "Disability and Employment in Australia – Some Positives and Negatives", Australian Journal of Career Development 1999, 8/3 Spring, 18-22.

¹² Bray & Allison op. cit 82.

*Table 1: Labour Market Participation Rate of People with a Disability,
1988 – 1998, Australia¹³*

	1988	1993	1998
MALES WITH A DISABILITY	61.0	62.6	60.3
MALES – NO DISABILITY	88.9	88.2	89.2
FEMALES WITH A DISABILITY	40.0	46.1	45.5
FEMALES – NO DISABILITY	61.9	65.6	71.0

*Table 2: Unemployment Rate of People with a Disability,
1988 – 1998, Australia*

	1988	1993	1998
MALES WITH A DISABILITY	10.2	18.0	13.5
MALES – NO DISABILITY	6.9	11.8	7.7
FEMALES WITH A DISABILITY	13.9	17.5	8.6
FEMALES – NO DISABILITY	9.9	12.3	8.0

Several aspects of these figures stand out. For males, there has been no increase in their labour force participation over this period, and a relative worsening in their rates of unemployment; for females, participation rates

¹³ Sources: Australian Bureau of Statistics: Disability and Handicap, Australia, 1988 (Cat 4120.0) Oct 1990; Disability, Ageing and Carers – Summary of Findings, Australia 1993 (Cat. 4430.0) Dec 1993; Disability, Ageing and Carers – Summary of Findings, Australia 1998 (Cat. 4430.0) Apr 1999.

have increased, but not relative to females without a disability. The dramatic improvement in the unemployment rate for females with a disability between 1993 and 1998 is curious. This is not due to changes in the participation rate. Nor can it be attributed to a particular level of disability, as the trend is evident across the spectrum of disability severity. This is certainly an area that invites further research.

Overall one can hardly say that the labour market situation for people with disabilities has improved during this period. Yet this decade includes the most intensive period of government disability policy activity in Australia's history. The failure of these policies to achieve measurable gains in the labour market performance of people with disabilities provides a backdrop to this research.

The limited employment involvement of people with a disability is reflected in their income. In 1998 in NSW the median gross weekly income of people with a disability was \$190, compared with \$390 for people without a disability. Only 23% of people with a disability derived most of their income from employment; 58% relied mainly on government pension or benefits.¹⁴

The consequences of low involvement in the paid workforce are more than simply financial. "Employment not only contributes to financial security, but also provides people with social experiences and skills which can help them to participate more fully in the community."¹⁵

Several studies have examined the employment of people with spinal cord injury in Australia. One study of 180 people found that 36% were employed, 8% were undertaking voluntary work, 16% were students and the remaining 40% were either unemployed or not in the labour force.¹⁶ A survey of 17

¹⁴ Bray & Allison *op. cit* 90.

¹⁵ *ibid* 79.

¹⁶ Murphy G. et al., "Paraplegia, quadriplegia and employment in Australia" *Australian Journal of Career Development* 1996, 10, 26-31.

previous studies found that around 40% of those with spinal cord injury return to work after their injury.¹⁷

These are similar to the findings of other studies. For example, Krause et al. analysed the employment experience of a cohort of 1,032 adults with spinal cord injury in the USA. They found that although 72% were employed before their injury, only 36% were employed at the time of the study. Only 14% of those employed returned to their previous jobs.¹⁸ Another study by Krause et al. examined data derived from follow-up interviews of 3,756 patients with spinal cord injury held at the National Spinal Cord Injury Statistical Center. They found that 58.6% were employed at the time of their injury, but only 27% were working at the time of the study.¹⁹

Fewer studies are available on the employment of people with cerebral palsy. Murphy's recent study of 101 participants living independently in the community found that 53% were in competitive employment (43% for those with spastic quadriplegia). While not directly comparable with earlier studies, this study does show an improvement in education and employment for people with cerebral palsy that the authors believe "may be attributable to improved technology and home support services".²⁰

The reasons for the poor labour market involvement of people with a disability will vary for different subgroups. Many factors will be identified in Chapters 2 and 3. These factors include those listed below:

¹⁷ Murphy G. and Athanasou J., "Vocational potential and spinal cord injuries – a review and evaluation" Journal of Rehabilitation and Counselling 1994, 25, 47-52.

¹⁸ Krause J. et al., "Employment after spinal cord injury: Differences related to geographic region, gender, and race", Archives of Physical Medicine and Rehabilitation 1998, Vol. 79, June, 615-624.

¹⁹ Krause J. et al., "Employment after spinal cord injury: An analysis of cases from the Model Spinal Cord Injury Systems", Archives of Physical Medicine and Rehabilitation 1999, 80, Nov, 1492-1500.

- ♦ Reduced productivity resulting from the disabling condition.
- ♦ Reduced capacity to undertake the full requirements of a job.
- ♦ Limitations in the person's endurance that affect the number of hours they can work in a day or week.
- ♦ Reduced educational opportunities and outcomes, in turn limiting access to better jobs.
- ♦ Ignorance and fear on the part of employers regarding the productivity, reliability and safety of disabled workers.
- ♦ Misunderstanding and resistance from fellow-workers, especially when the person with a disability is unable to perform at the same level of productivity as other members of the workgroup.
- ♦ Employer concerns about the cost and hassle of employing people with disabilities – the costs of special equipment, support staff and supervision, and the inconvenience of job changes, training and monitoring.
- ♦ Discrimination in the labour market – that even with the same experience, qualifications and skills as other applicants for a job, a person with a disability is more likely to miss out simply because they are disabled.
- ♦ Discrimination in terms of wage rates, promotional opportunities and employee benefits.
- ♦ Rigidities in the way jobs are organised, resulting in a failure to make simple adjustments and adaptations that would enable a person with a disability to undertake many jobs.
- ♦ Problems in accessing workplaces, work venues or work facilities.

²⁰ Murphy P. et al., "Employment and social issues in adults with cerebral palsy", Archives

- ♦ Problems in arranging reliable transport to and from work.
- ♦ Periodic absences that may be required for medical treatment.
- ♦ The failure of organised labour to assist, support and promote the interests of disabled workers.
- ♦ Disincentives in taxation and social welfare policies that inhibit the employment or advancement of people with a disability.

This list illustrates the diversity of factors that can influence the employment journey of a person with a disability. A framework or model will assist in the analysis of these factors later in the study, and such is proposed more fully in Chapter 3. At this stage we can note the key junctions or decision points that mark the employment process of a person with a disability:

1. The person's decision to seek employment. Obviously the person's decision to seek employment is the necessary starting point in the employment process. There are many factors that can influence this decision by the individual. These include economic factors, government policies, personal confidence and the disability itself.
2. The person's job readiness. This too can be influenced by a variety of factors, including education, motivation and vocational counselling. Segmentation in the labour market can mean that people with disabilities have reduced employment options available. Many people with disabilities rely on funded job placement services. Two of the key issues here are *skill development* and *job matching*.

3. The employer's decision to employ a person with a disability. This is one of the focal points of analysis and policy. What are the factors that lead an employer to take on a person with a disability? What combination of incentives and penalties will entice an employer to employ someone with a disability?
4. The growth of a job into a career. Obtaining a job is only the beginning of an employment relationship. In many cases people with disabilities are "parked" in jobs that have no scope for advancement. What are the factors that give the employee enduring employment, growing responsibility and increasing income? Here the focus is on the workplace itself, especially factors such as the *workgroup* and *technology*.

These key junctions will provide the basis for a framework to analyse the factors that emerge in the literature review (Chapters 2 and 3) and the policy options developed by various governments (Chapter 5).

Computers, Employment and Disability

One of the major changes in employment over the past decade has been the increasing involvement of computer technology. Recent data indicates that 63% of adults use a computer at work.²¹ The influence of computer technology at workplaces is still expanding.

However another revolution has also been taking place over the last decade, one that has quietly shadowed the main expansion of personal computers. An increasing variety of adaptive computer technologies (hardware and

²¹ Australian Bureau of Statistics, Household Use of Information Technology, 2000 (8146.0, Canberra, May 2001).

software) have been developed, to enable people with a disability to gain access to computers. This technology has empowered people with a disability in areas such as communication, education, creativity, personal independence, access to information and recreation. Without this secondary revolution, the gap between those with and those without disabilities would have widened to an intolerable level.

The critical contribution of this assistive technology can be illustrated through the *Computer Independence Measure (CIM)*, being developed at the Ability Research Centre in Sydney, NSW. The CIM gives a weighted score covering the main tasks involved in using a computer system: basic computer operation, text input, cursor control, joystick control, printer control, Internet access and troubleshooting. In this typical example a quadriplegic was given a score without the use of any assistive technology. In other words, a calculation was made for this person, based on their capacity to control a series of basic computer functions, using only a standard keyboard and mouse. The result was 17.6% (100% is the expected score of someone without a physical or cognitive disability).

However a second score was calculated following the introduction of two items of assistive technology - a programmable trackball and a speech recognition system. The new CIM score was 63% – a dramatic improvement. Additional devices would have increased the score even further.

What this illustrates is that computer technology provides a potential bridge rather than a barrier for people with a disability regarding their employment. One could even suggest that the relative productivity gains from computer use are likely to be greater for people with a disability than for those without a disability. Whether the potential will be realised is a major consideration of this study.

However in spite of the positive potential of computer technology for people with disabilities, it would be wrong to see such technology as a panacea for the employment problems affecting this group. There are many factors that shape and influence the employment process for people with disabilities. No single factor is likely to dominate, but rather a complex interaction of varied and sometimes contradictory factors. An evaluation of the role of computer technology, and its interplay with these other factors, must remain balanced and without overstatement.

The Parameters of This Study

This study will evaluate the role of computer technology in influencing the various stages in the employment process of people with quadriplegia. A number of issues require elaboration at this point.

First, the focus is on people with physical disability. Two groups with quadriplegia are included in the study – some with spinal cord injury, and several with cerebral palsy. In both cases there is no identifiable cognitive impairment. In the case of the people with cerebral palsy there is an additional impairment relating to speech.

It is relevant at this point to describe briefly the aetiology of these groups, so as to highlight their different backgrounds and experiences. These differences have a bearing on their labour market experiences.

Quadriplegia from Spinal Injury

In 1998 there were estimated to be 7,000 – 8,000 Australians with permanent paralysis following spinal cord injury. Motor vehicle accidents accounted for 50% of the spinal cord injuries occurring in 1997-98. Falls accounted for 28%

of these injuries and diving accidents another 8%. The most common age group was the 15-24 year group. 79% of victims were male.²²

Damage to the spinal cord involves both the vertebrae (bones) and the nerve tissue itself. It is the latter that causes permanent injury and disability. The extent of the functional limitations imposed will depend on the level of the injury. Generally the higher the level of injury, the greater is the loss of movement and sensation.

Paraplegia involves loss of sensation and movement to the legs and the trunk. Loss of bowel, bladder and sexual function are also usually involved. It results from an injury to the spinal cord in the mid or lower back.

Quadriplegia results from a higher level injury, usually to the neck. In this case there is a loss of sensation and movement in all four limbs. The level of injury is usually described in terms of the level of the cervical spine (neck) affected. Lower numbers indicate a higher level of injury and a greater level of disability. Thus people with injuries to the C1-C4 level often require a ventilator to breathe. Those with C5 injuries usually retain shoulder and biceps control, but not wrist or hand movements. At C6 there is wrist movement but no hand movement, while at C7 there is usually hand movement but problems with finger movement and dexterity.

Sometimes some functioning below the level of the injury is retained, or there may be more functioning on one side of the body than the other. These injuries are referred to as *incomplete*.

People with quadriplegia from spinal injury usually also have problems with blood pressure and temperature control. They may have chronic pain.²³

²² Australian Injury Prevention Bulletin, 1998 Dec, 21.

²³ This information was obtained from the Paraquad web site (www.paraquad.asn.au/introduction/spinal/spinal.htm).

Spastic Quadriplegia

Cerebral palsy results from damage to part of the brain, thus affecting the transmission of messages between the brain and the muscles. The damage usually occurs just before birth, at birth and just after birth. Approximately one child in 400 is affected by cerebral palsy.

There are many possible causes of cerebral palsy. It can result from an infection while in the womb, a premature birth resulting in breathing difficulties, a genetic disorder or a medical mishap.

In some people the effects of cerebral palsy will be hardly noticeable. But in others the effect will be considerable. Those in this study are affected by *spastic* cerebral palsy, a condition that results in stiffness and reduced range of movement in joints. When all four limbs are affected, this condition is called *spastic quadriplegia*. Other types of cerebral palsy are *athetoid* (muscles change uncontrollably from floppy to tense) and *ataxic* (large uncontrolled movements, poor balance, shaky hands). Some people have a combination of these types. Cerebral palsy manifests itself differently in each person. Cerebral palsy often affects a person's speech and swallowing. It can also affect their learning and cognition.

The people with cerebral palsy involved in the case studies have *spastic quadriplegia* and problems with speech. However, based on their academic achievements, it is assumed they do not have cognitive or learning deficits.

Why have these groups been chosen? By focusing on those with a physical disability (quadriplegia) without the complication of cognitive impairment, we can stress the potential for this group to achieve successful employment outcomes. Their productivity potential would be high once they have benefited from assistive computer technology. This potential will throw into

starker relief the operation of other factors that influence their employment experience (such as discrimination or policy failure).

A second feature of this study is that it examines private sector employment. It is felt that different factors will apply in government employment and also in jobs that are located in the disability sector itself. These factors may cloud or override the issues of concern in this study. For example, many governments set their own quotas, insisting that their departments employ a certain proportion of people with disabilities. While this may model good practice, it is hardly persuasive to employers in the private sector. Economic constraints are lacking.

Similarly we do not learn much from jobs that are located in the funded disability sector itself. The fact that an organisation such as the *Australian Quadriplegic Association* favours the employment of people with quadriplegia comes as no surprise. While such actions may please their constituents and funding bodies, they do not inform us regarding the range of factors applying in the private sector.

In the private sector employers have to make decisions and judgements about an employee's productivity and contribution to the business. Numerous influences will bear upon such decisions. We learn much more about the employment process by focusing our attention on the private sector.

Finally, the study utilises a case study methodology.²⁴ There are several reasons for this. It would be difficult to obtain the vital qualitative information required through a survey. A case study approach is far better suited to this task. There is also a very limited amount of quantitative data available on the issue of disability and employment in Australia. In the USA,

²⁴ See Yin R., *Case Study Research Design and Methods* 1994, SAGE Publications, 2nd edition, California.

where more data is available, there is the suggestion that quantitative analysis has perhaps run its course, at least for now. As one prominent analyst of quantitative data on the employment of people with spinal cord injury comments: “qualitative designs may be better able to identify the key variables of interest that can then be further studied using quantitative research”.²⁵ The six case studies in this research provide the best opportunity to examine the key issues addressed in this study.

Another reason for favouring a case study approach is that it allows me to draw on my extensive personal involvement in this issue. I am the founder and Executive Director of *Ability Technology*, an organisation devoted to the task of adapting computer technology to the needs of people with disabilities. It is through my work with *Ability* over the past 11 years that I have gained experience and expertise in the process of adapting computer technology to the needs of people with disabilities. During this period I have conducted over 500 individual assessments of the computer access needs of people with a variety of disabilities, in all States in Australia. I contribute to a number of disability journals in Australia and am often called upon as an expert witness in personal injury and medical negligence cases where technology issues are involved. I have undertaken a number of major research projects in Australia in areas such as speech recognition, environmental control systems, the use of computers for people with brain injury and computer support options for people with disabilities in rural and remote areas. This detailed experience has provided me with a unique vantage point from which to identify the pros and cons of modern computer technology in the work lives of people with quadriplegia.

²⁵ Krause et al (1999) *op cit* 1499.

Key Questions

The key questions to be addressed in this study are as follows:

1. What is the role of computer technology and related assistive technology in the various stages of the employment process for people with quadriplegia?
2. How should the role of this technology be evaluated in relation to the operation of other factors influencing the employment of people with quadriplegia?
3. What evaluation should be made of recent government programs and policies in Australia, in the light of the above analysis?

The following chapters address these issues.

Chapter Two examines the literature on disability and employment in the established disciplines of sociology, law, economics and industrial relations. The issue of disability and employment does not feature prominently in these disciplines; the issue of technology and disability even less so. Some of the contributions, especially in sociology and economics, are useful nonetheless. The lack of dialogue between these disciplines on this issue is a notable feature. In particular the insights from economics have largely been quarantined from the other disciplines.

Chapter Three examines the contribution of the new areas of study, *vocational rehabilitation* and *assistive technology*. Here we find a greater focus on issues concerning disability, employment and technology, but without the methodological rigour of the established disciplines. In some cases the fundamentals of economics and law are ignored or contravened.

At the end of Chapter Three the relevant insights from each of these disciplines are incorporated into the framework discussed earlier. In many

areas of study fresh insights can emerge when a problem or issue is described in a different way. By breaking the employment process into four distinct junctions, this framework allows a clearer identification of the ways in which factors and policies work together and, quite often, work against each other. It provides a useful vantage point on the problem.

Such a framework is more than just a descriptive tool. It is an attempt to unite the insights of various disciplines, something that has not been undertaken in the literature. This issue cries out for a multi-disciplinary approach and for the formulation of tools that will enable various insights to be incorporated: such would allow for the cross-fertilisation of ideas between disciplines.

Chapter Four outlines the various computer access technologies and services available for people with disabilities, especially those with quadriplegia. While this chapter is largely descriptive, it does verify the extensive range of assistive technologies available to assist people with quadriplegia in becoming productive through the use of computers. These assistive devices do more than just blunt the disadvantages people with disabilities would otherwise experience in the information technology age: they enable people with disabilities to make relative productivity gains against their non-disabled peers.

Nevertheless, the process of connecting a person with a disability with the most appropriate computer access technology is far from automatic. This chapter shows that ignorance abounds regarding the availability of appropriate technology, the process of matching it to the needs of an individual and the technical and training services that are required to sustain the connection. This ignorance unfortunately limits the vision of individuals, job placement agencies, employers and governments. There remains the

suggestion that the role of computer technology has yet to be embraced fully by key professions such as occupational therapy.

Chapter Five examines and evaluates government policies and programs aimed at facilitating and promoting the employment of people with physical disabilities. A comprehensive list of policy options is developed from the literature. The development of policies in the Australian context is discussed, with special attention to those policies regarding assistive technology. An evaluation of these policies is then undertaken, using the framework to identify areas of omission and contradiction.

It will be seen that this issue has been poorly handled in the Australian context. Its virtual neglect in the literature has meant that government policies have often lacked proper academic analysis or scrutiny. When combined with the lack of any inter-disciplinary synthesis of ideas and insights, the result has been what can only be described as an incoherent set of policies. We can note also that in Australia the disability sector has yet to become a cogent political force.

Chapter Six describes several case studies involving the employment experience of people with quadriplegia. Three people with cerebral palsy and three with spinal injury are included. Two have what could be described as successful employment outcomes, i.e., they have jobs that are growing in income and responsibility, and where both parties are pleased with the outcome. Three others are seeking to develop work options from home. One participant cannot get started in her employment journey, and could fairly be regarded as someone whom the system has failed.

These studies demonstrate how academic and policy failures translate into problems for individuals at the workplace. The six employment journeys are unique, yet they exemplify the precarious nature of employment for people with this level of disability.

Chapter Seven concludes the research by addressing the key issues of the study. The role and relative importance of computers in the employment of people with quadriplegia is described. The current government policy mix in Australia is critically examined. Theoretical implications of the study are also identified.

CHAPTER TWO

LITERATURE REVIEW – ESTABLISHED DISCIPLINES

Introduction

This chapter examines how the issue of disability and employment is dealt with in the literature of a number of established disciplines. The following chapter examines the contribution of the new areas of study, namely vocational rehabilitation and assistive technology.

The disciplines considered in this chapter are not completely distinct from each other. There are important areas of overlap, both conceptually and in practice. For instance, sociology offers some analysis of the plight of people with a disability in society, but also provides tools that critique disability policy. Economics gives some analysis of the impact of disability on labour force participation, but also informs policy formulation with insights on the impact of various policies on employer decisions to hire people with a disability. Economics, law and sociology examine the area of discrimination, but each with different tools and perspectives.

There are at least three ways in which the literature review could be organised. It could be based on the subject matter addressed, the tools of analysis employed or the discipline of the journal in which the study appears. Given our interest in gauging the degree of interest in various academic communities, the literature review has been organised wherever possible on the basis of the academic origins of the journal or book.

While the review embraces the input from a variety of disciplines in the general area of disability and employment, special attention is given to the areas of prime interest for this study, namely physical disability, the role of technology and, of course, the Australian context.

Social Analysis¹

SOCIAL ATTITUDES TO DISABILITY

Social attitudes to disability have a sad and sorry history. It is only in 1922 that Harry Laughlin called for the compulsory sterilisation of “defective classes”, including the “feeble-minded”, “epileptics”, the “deformed”, the “deaf” and the “blind”². Early in the industrial era people with disabilities were generally labelled as “feeble-minded” (not just those with intellectual disabilities, but also including those with sensory or physical disabilities) and the trend towards institutionalisation was established.³ Coleridge reminds us that the Eugenists of the 19th century called for the elimination of “defectives”, thus influencing Hitler’s glorification of the “perfect” human being and his program to exterminate disabled people as “imperfections which contaminate the genetic stream”.⁴

Even today it is often assumed that people with physical disabilities such as cerebral palsy also have cognitive or intellectual impairments. Public ignorance about disabilities persists.

West outlines a range of “second-class relationships with society” described by people with disabilities.⁵ These include the experience of being invisible or ignored; of engendering discomfort in others; of being objects of pity; and

¹ This broad label is used to include studies with a sociological, historical or political perspective, as well as some that would be more precisely labelled ‘social psychology’.

² Pfeiffer D., “Overview of the Disability Movement: History, Legislative Record, and Political Implications”, Policy Studies Journal, 21/4, 1993, 726. See also Shapiro J., No Pity - People with Disabilities Forging a New Civil Rights Movement 1992, New York, BY: Times Books, and Treanor R., We Overcame: The Story of Civil Rights for Disabled People 1993, Falls Church VA: Regal, and Barnes C., “The social model of disability: A sociological phenomenon ignored by sociologists?” in Shakespeare T. (ed) The Disability Reader – Social Science Perspectives 1998 Cassell, London, Chapter 5, 65-78.

³ ibid.

⁴ Coleridge P., Disability, Liberation and Development 1993, Oxfam, Oxford, 45-46.

⁵ West J., “The Social and Policy Context of the Act”, in West J. (ed), The Americans with Disabilities Act: From Policy to Practice, 1991, Milbank Quarterly 69/1-2.

of being adulated as inspirational for overcoming seemingly insurmountable obstacles. On the other side of the fence, the Harris Poll in 1991 described how the most common affective responses of the general public towards people with disabilities were admiration, pity, embarrassment, apathy and fear.⁶

In view of the major and obvious disadvantages faced by people with a disability, why then has this group not gone down the path of racial and sexual minorities in seeking redress for their plight? The answer lies in the fact that “they” are not really a group at all. Only statistical convenience creates a group out of “people with a disability” or “people with a handicap”. Members of this group are extremely diverse. They vary in the nature of their disability (physical, sensory, cognitive, psychiatric, behavioural) and the type of handicap it produces (such as mobility, self-care, communication, employment). They lack the homogeneity of racial and sexual minorities. Disability in some cases is also subject to change, unlike race or gender.

But there are other reasons for the lack of solidarity among people with a disability. The very nature of many disabilities is that they impair a person’s mobility and/or capacity to communicate. This limits the scope for activities and interactions that promote solidarity and allow social movements to develop. The disabilities themselves tend to isolate people rather than bind them together with others. They have been, in the words of one commentator, “a notably silent and nonvisible minority”.⁷

In spite of these hurdles, a movement of protest did arise in the USA and its impact provides the setting for this study. Pfeiffer describes the emergence

⁶ Harris L. & Associates, Public Attitudes towards People with Disabilities, 1991, National Council on Disability, Washington.

⁷ West op cit., 9.

of what he calls The Disability Movement.⁸ Forerunners of the Disability Movement emerged after World War I among blind veterans, who formed the American Foundation for the Blind. A number of new groups were formed after World War II, including the Paralyzed Veterans of America. Such groups, which were run by people with a disability themselves, differed from other disability groups of the period that were organised by parents of children with disabilities. The latter groups tended to focus on service delivery rather than rights. Disability group leaders learnt new skills as part of the broader civil rights movement. They sought empowerment, not pity.

One of their early targets was patronising language, with the preference for “people first” descriptors (“people with disabilities” rather than “the disabled” or “the handicapped”).⁹

They took to the streets in the mid 1970s over delays by the Carter administration in promulgating regulations for Section 504 (the “civil rights provision”) of the *Rehabilitation Act of 1973*. Federal buildings were taken over, sit-ins (or ‘roll-ins’) were conducted and acts of civil disobedience were undertaken.¹⁰ Pressure and protest continued during the Carter, Reagan and Bush years, culminating in the passage of the *Americans with Disabilities Act of 1990*. People with a disability are now seen as an established part of the American political process.

The International Year of Disabled Persons (IYDP) in 1981 served both as a reflection of the growing influence of the Disability Movement but also as a boost to community awareness of disability issues. The associated media campaign in Australia helped make people more aware of disability

⁸ Pfeiffer, *op cit*.

⁹ West, *op cit*, 14.

¹⁰ Zola I., “The Active Voice: A Reflective Essay on Three Books”, *Policy Studies Journal* 1993, 21/4, 802-805.

concerns, although it is doubtful whether it served to change attitudes or to increase contact between people with disabilities and others in the community.¹¹ As we shall see later, the IYDP helped stimulate significant policy change in Australia in the 1980s.

Yet there has been little discussion regarding a Disability Movement in Australia. A prominent recent study by Burgmann of Australian protest movements carefully analyses new social movements based on gender, sexuality, peace, the environment, race and ethnicity – but not disability.¹² It would be fair to say that the public influence of the disability community in Australia has been far more subdued than in the USA, to the extent that one would have to question whether there has actually been a Disability Movement as such in Australia.

Returning to the international scene, we can note that there are other perspectives on the history of the Disability Movement. Albrecht, for example, argues that the cause has now been usurped, at least to some extent, by the “rehabilitation industry”.¹³ Zola cautions against anchoring the history of disability rights movements in the 20th century.¹⁴ He speaks of “the eternal existence not only of chronic disease and disability but also of the personal, social, and political attempts both to deal with and to deny them. Without this sense of history, there is no societal or even personal appreciation of the depth of the fear of disability (and death).”¹⁵

¹¹ See Warren R., “A Review of Attitudes and Disability”, The Australian Journal of Special Education 1985, 9/2 Nov, 28-32; Gething L., “An investigation of attitudes towards disabled persons in Australia”, Australian Rehabilitation Review 1982, 6/4, 46-50.

¹² Burgmann V., Power and Protest – Movements for Change in Australian Society 1993, Allen & Unwin, Sydney.

¹³ Albrecht G., The Disability Business: Rehabilitation in America 1992, Newbury Park, CA: Sage.

¹⁴ Zola I., op cit.

¹⁵ ibid 802.

West notes that some people choose to see their disability as a central feature of their identity, and refer to themselves with pride as “cripples” or “the deaf”.¹⁶ They seek to celebrate their culture rather than allowing it to be absorbed into mainstream culture.

These studies of the Disability Movement do not give full weight to the importance of war, both in generating pools of adults with disabilities and also inspiring efforts at their rehabilitation. The plight of war veterans with disabilities is also more likely to stimulate support from all elements in society.

The rise of the Disability Movement has inspired greater attention to issues regarding the place of people with a disability in society. Studies have looked at cultural values and disability, with particular emphasis on youth, beauty and individual success.¹⁷ Similarly there have been studies of the portrayal of disability in films,¹⁸ advertising¹⁹ and the impact of disability on family structure.²⁰

DISABILITY AND EMPLOYMENT

Employment is one of the prime areas where people with a disability have felt disadvantaged and has been one of the prime targets of the Disability Movement. A number of authors have sought to analyse the employment situation of people with a disability in Marxist terms, the most influential of

¹⁶ West, *op cit*, 15.

¹⁷ Fowler C. and Wadsworth J., “Individualism and equality: Critical values in North American culture and the impact on disability.” Special Issue: Disability policy and laws: II. Implications for professional practice, *Journal of Applied Rehabilitation Counseling*, 1991, 22/4, Winter, 19-23.

¹⁸ Byrd E., “A Study of Depiction of Specific Characteristics of Characters with Disability in Film”, *Journal of Applied Rehabilitation Counseling*, 1989, 20/2, Summer, 43-45.

¹⁹ Hahn H., “Advertising the Acceptably Employable Image: Disability and Capitalism”, *Policy Studies Journal* 1987, 15/3, March, 551-570.

²⁰ Franklin P., “Impact of Disability on the Family Structure”, *Social Security Bulletin* 1977, 40, May, 3-18.

these being Oliver.²¹ He begins by arguing that both impairments and disability are culturally produced. Impairments depend on the economic, social and technical environments we live in, rather than being a matter of chance. Disability too depends on the meaning given to the impairment by society. So how a society organises the production process, together with its core values, will determine how disability is defined in a particular culture.

Oliver then enquires as to how disability came to be defined under capitalism. His central thesis is that factory production excluded many people with disabilities from the production process. Institutions became more involved as disabled people were segregated. Further, "disability became an important boundary category through which people are allocated either to the work-based or needs-based system of distribution."²²

Important ideological accompaniments of capitalism also shaped the lives of disabled people. Capitalism, he argues, produces the isolated private individual, but also the notions of "able-bodied" and "able-minded" individuals, so essential to the new work processes. This is critical in Oliver's schema, because it gives rise to a redefinition of disability as an individual pathology and hence to the medicalisation of disability. Disability has come to be seen as a personal tragedy, a personal problem, a problem of "adjustment".

Oliver argues that these problems persist in modern societies. When it comes to enabling employment for disabled people the emphasis is nearly always placed on making the individual suitable for work, rather than changing the organisation of work so that disabled people are not excluded.

Oliver seeks to establish that disabled people are "oppressed" and to do this he needs to identify a beneficiary of this state of affairs. This is not the

²¹ Oliver M., The Politics of Disablement, 1990, Macmillan, London.

²² ibid 40.

strongest part of his analysis, as he argues: “capitalism itself benefits in that disabled people may perform an economic function as part of the reserve pool of labour and an ideological function in being maintained in their position of inferiority. Thus they serve as a warning to those unable or unwilling to work.”²³

However Oliver’s program for emancipation of people with a disability relies not on the rise of socialism but rather on the “rise of a strong, vibrant and international disability movement” that will change the medical perception of disability to one of social oppression.²⁴ The conclusion is imprecise, and may reflect Oliver’s difficulty in subjecting the recent events in which he has participated himself to the same level of analysis as the other topics he has covered.

Oliver’s work has been influential, but he is not alone in relating disability to social and economic forces. Hahn argues “the unemployment rate of disabled adults may be traced to broad economic forces rather than to individual impairments”.²⁵ He examines the role of capitalism in standardising workplaces and work routines that excluded disabled workers, and also in promoting “messages about acceptable forms of human appearance that encouraged consumers to strive relentlessly to approximate these images”²⁶; people with a disability were, of course, unable to attain these “ideals”. Employers, he argues, are strongly influenced by this in their hiring decisions.

Finkelstein developed a model that sees technology as the main determinant of the experience of disability since industrialisation. Pre-industrial society did not exclude people from the process of production. It was only the new

²³ *ibid* 70.

²⁴ *ibid* 132.

²⁵ Hahn *op cit.*, 552.

²⁶ *ibid* 555.

factory-based work under industrialisation that led to the social and economic segregation of people with disabilities. He anticipates a new stage, just beginning, where technology will liberate people with disabilities from oppression and lead to a situation where disability is regarded as only a social restriction.²⁷

Others have argued, without the materialist infrastructure, that disability only becomes handicap because of social and community structures that fail to take into account the existence of people with a disability.²⁸ Such studies offer a critique of rehabilitation (implicit or explicit) as a perpetuation of an individual as compared with a social explanation of handicap.

Chadwick develops an alternative perspective to Oliver's emphasis on ideology, and draws some insights from Foucault's concept of power/knowledge.²⁹ In summary:

Specific economic/historical events, in this instance, social conditions where certain groups could control and wished to control the population, created the circumstances for the medico-professions to develop a medical discourse of functional disability which in turn created social disability. That is, by talking about disability in terms of physiological and neurological causes and, at the same time, preventing other people talking about it using other discourses, say, of social relations, building design or whatever, the medico-professions brought about a situation where they created a disability which was isolated from other social developments. Consequently society grew with no reference to difference, it could not take into account the requirements of people with impairments.³⁰

²⁷ Finkelstein V., Attitudes and Disabled People 1980, World Rehabilitation Fund, New York.

²⁸ There are many examples, but consider Tolliday S., Physical Handicap and Employment Discrimination, 1982, Industrial Relations Research Centre, UNSW, Research Paper No. 4.

²⁹ Chadwick A., "Rights on a wrong wheel: the dangers of a medical approach to civil rights", Australian Disability Review 1995/2, 40-59.

³⁰ ibid 46.

Chadwick also argues that the prevalence of medical or functional perspective “can shape disabled people’s perception of themselves”. Hence the way ahead is not to liberate people with a disability from the oppressive structures, but rather to “continue working hard at constructing new identities within a power/knowledge regime of our own making”.³¹ The suggestion is made that the verb “disable” be used in the following manner: “to render a person with an impairment unable to take part in the life of the community on an equal level with others by imposing physical or social barriers”.³²

The work of Oliver and those who have followed have helped establish “disability studies” as an emerging academic discipline. The focus is on “theoretical development and empirical evidence, not on policy, practice or political action” and “establishes disability as a major and neglected area of human social experience, to which it is essential and timely to devote scholarly attention”.³³ The new discipline naturally covers a wider span of issues than simply those relating to the employment of people with physical disabilities, the focus of this thesis, and this can be seen in these readings edited by Shakespeare.³⁴

However Roulstone’s contribution takes the discussion closer to the themes of this study.³⁵ He describes the benefits of computer technology as “serendipitous” and “unplanned”. He contrasts a medical or deficit approach to new technology, where it is seen as reducing bodily deficiencies, with a social barriers model, where it is viewed as “a useful tool in overcoming the barriers of an oppressive working environment”. The new

³¹ *ibid* 46, 48.

³² *ibid* 54.

³³ Shakespeare T., “Introduction” in Shakespeare T. (ed) The Disability Reader – Social Science Perspectives 1998 Cassell, London, 1.

³⁴ *ibid*.

technology should be “viewed alongside ramps and doors as access aids and issues”. However problems such as attitudes and exploitation still persist at the workplace. He concluded from his research (focus groups, undertaken in 1990-92):

It was clear from the qualitative stage of the research that new technology enhanced the employment experiences of many disabled people while the status of the participant’s body remained exactly the same, i.e. ‘uncorrected’. No disabled participant discussed the benefits of new technology in terms of it augmenting or compensating for their bodies.³⁶

Such an analysis is not entirely persuasive. On this argument prosthetic devices would be dismissed as conforming to an individual/medical model, yet they would be desired by many people with disabilities. At times computer technology functions more like a prosthesis than as a means of reducing environmental barriers. A more comprehensive model of the employment process for people with disabilities is required, in order to distinguish the role of various factors.

Technology is also mentioned in a recent study by Harlan and Robert. They have highlighted the principle of *reasonable accommodation* as a “remarkable achievement” that “acknowledges that work environments are the result of choices about how work is accomplished and that employers can make different choices that lead to greater flexibility and tolerance in the workplace”.³⁷ They draw on the theory of social construction of gender, race and class in organisations, which sees organisations as “socially constructed

³⁵ Roulstone A. “Researching a Disabling Society: The case of Employment and New Technology” in Shakespeare T. (ed) *op cit.*, Chapter 8, 110-128.

³⁶ *ibid* 128.

³⁷ Harlan S. and Robert P., “The social construction of disability in organizations: Why employers resist reasonable accommodation” *Work and Occupations* 1998, 25/4, 398.

realities that rest as much in the heads and minds of their members as they do in concrete sets of rules and relations".³⁸

They trace the rise of *ableness* as an assumption in work organisations following the separation of home and workplace under industrialisation. As demand for labour grew, there arose a need for medical practitioners to distinguish those with authentic impairments from those shirking work. Thus the medical approach to disability, and the rehabilitation industry, began. Reasonable accommodation, however, "requires employers to examine the possibility that disability is located in the work environment and to provide alternatives for individual opportunity".³⁹ Several case studies demonstrate employer resistance to making such accommodations, especially for low-status employees who are often just fobbed off.

DISCRIMINATION

There have been some other sociological attempts to analyse *employer attitudes* to people with disabilities, especially *discrimination*. A recent French study sought to measure discrimination in employment by sending unsolicited job applications to a representative sample of French companies. Four different profiles were used, based on the presence or absence of mention of a physical disability (paraplegia) and high or low levels of qualification. They found that highly qualified able-bodied applicants were 1.78 times more likely to receive a favourable response than their disabled counterparts, and modestly qualified able-bodied applicants were 3.2 times more likely to receive a positive response. Discrimination increased as the size of the company increased.⁴⁰

³⁸ ibid

³⁹ ibid

⁴⁰ Ravaut J-F., Madiot B. and Ville I., "Discrimination Towards Disabled People Seeking Employment" Social Science and Medicine, 1992, 35/8, 951-958.

A different conclusion was reached in a study by Nordstrom et al., which concluded that in some situations “persons with disabilities may have an advantage in employment interviews over persons without disabilities”.⁴¹ However there are serious methodological problems with this study. University staff with recruitment experience were used in the research, but their reactions to the various applicants were based on viewing a videotape. There was no personal contact with the applicants, thus bypassing one of the main confronting aspects for employers of recruiting someone with a disability. Only one person with a disability was used in the study, and “most considered her moderately attractive”; in addition, her disability “while not hidden, was by no means repellent”.⁴² As conceded by the researchers, “participants did not have to live with their decisions” and the research took place in “the unique environment of a university” with “aggressive affirmative action programs”.⁴³ One can hardly imagine a collection of factors more conducive to the positive result obtained, yet so distant from the real life circumstances faced by the vast majority of people with a disability.

A recent study of 248 employers found that job applicants without a disability were rated as more employable than applicants with severe disabilities. This study also tried to determine whether employers favour those with physical disabilities over those with psychiatric disabilities, but was thwarted in that task by a poor selection of disability types. The two disabling conditions – acquired brain injury and schizophrenia – were too

⁴¹ Nordstrom C., Huffaker B. and Williams K., “When Physical Disabilities are not Liabilities: The Role of Applicant and Interviewer Characteristics on Employment Interview Outcomes”, *Journal of Applied Social Psychology* 1998, 28/4, 283-306.

⁴² *ibid* 300.

⁴³ *ibid* 302.

similar in the eyes of the employers.⁴⁴ This issue is addressed more earnestly in the vocational rehabilitation literature.

In the UK context a study by Jackson et al. demonstrated that knowledge of the *Disability Discrimination Act* and attitudes towards people with a disability both had a small but significant influence on employers' willingness to adjust their recruitment processes in line with the legislative requirements.⁴⁵

WORK VALUES

Another area where a social analysis potentially has a lot to offer is that of *work values* of people with a disability. This issue becomes extremely important when considering the significance of sheltered workshop employment or non-employment options for people with severe disabilities. It is also relevant to our understanding of how an individual with a disability may decide to seek employment. Unfortunately very little has been done in this area.

A study by Schechter tried to identify the characteristics of people who, although describing themselves as "severely disabled", nevertheless continue to work. He found that the traits associated with this work commitment were (in 1972) a lower severity of disability, being male, having a higher level of education and the need to help relatives financially.⁴⁶

⁴⁴ Bricout J. and Bentley K., "Disability status and perceptions of employability by employers" Social Work Research 2000, June 24/2, 87-95.

⁴⁵ Jackson C. et al., "Employer willingness to comply with the Disability Discrimination Act regarding staff selection in the UK", Journal of Occupational and Organisational Psychology 2000 73, 119-129.

⁴⁶ Schechter E., "Commitment to work and the self-perception of disability", Social Security Bulletin, 1981, 44/6, June, 22-30, 37

A study by Nagi and others in 1972 had shown that there were no differences in attitudes to work between the disabled and others.⁴⁷ Greenblum and Bye followed this up in 1987 by examining the work attitudes of disabled welfare beneficiaries. Their study, which was based on 1978 data, concluded “belief in the importance of a job does not decline after entitlement to disability insurance benefits. For both male and female beneficiaries, the importance of a job was generally maintained or intensified.”⁴⁸ This is an important issue and one that has developed considerable interest in the economic literature (as we shall see later). Its importance rests in the fact that any trend towards early retirement of people with a disability will have an effect on figures of overall employment of people with a disability.

Roessler examined issues affecting the return to work of people who suffered mid-career disabilities. The motivation to return to work, he argues, depends on expectations regarding the success of any return to work arrangement, the perceived benefits or utility of returning to work and the costs involved of returning to work – summarised by the question: “what’s in it for me?”⁴⁹

OTHER ISSUES

The *social* as distinct from *structural* barriers faced by people with a disability at the workplace are the focus of a study by Boyle.⁵⁰ A case study methodology was used. The seven participants suffered negative stereotypes, including a negative social image (based on ignorance and “that

⁴⁷ Nagi S., McBroom W. and Collette J., “Work, employment and the disabled”, in American Journal of Economics and Sociology, 1972, Jan, 21-34.

⁴⁸ Greenblum J. and Bye B., “Work values of disabled beneficiaries”, Social Security Bulletin, 1987, 50/4, April, 70.

⁴⁹ Roessler R., “Motivational factors influencing return to work” Journal of Applied Rehabilitation Counseling 1989 20/2 14-17.

⁵⁰ Boyle M., “Social barriers to successful re-entry into mainstream organizational culture: perceptions of people with disabilities”, Human Resource Development Quarterly 1997 Fall 259-268.

seeing people with profound physical impairments requires that they address their own mortality”), constraints imposed by an inflexible rehabilitation system, rigidities in the way jobs are structured and organisations that made accommodations more to suit their own public image than the real needs of people with a disability. He concludes: “simply passing laws prohibiting organisational discrimination will not alleviate the larger barrier of a negative social perception and its resulting prejudice”.⁵¹

The relationship between disability and social structure was explored in a study by Pfeiffer that concluded: “The social class structure which enables white males in the USA to have access to things such as education, jobs, and higher income still rules in the Disability Community. Disabled white males are still more likely to be employed and to receive higher income than disabled women and disabled minorities. The Disability Community, in regard to employment and income, is an extension of the US society”.⁵² However this conclusion outruns the substance of the research, which clearly shows that education is the most powerful predictor of employment.⁵³ This study is also prior to the *Americans with Disabilities Act of 1990*.

A recent study by Jenkins explores disability as a factor separate from class relations in explaining social stratification.⁵⁴ But it begins with an apology for past neglect. Even though he deals with some ‘classic’ sociological concerns, such as class, status and citizenship, Jenkins does so in a manner that suggests that these issues have not been considered in an inclusive fashion before. Traditional sociology has been slow to embrace the study of disability, thus leaving the way open for the new field of Disability Studies.

⁵¹ *ibid.*

⁵² Pfeiffer D., “The influence of the socio-economic characteristics of disabled people on their employment status and income” *Disability, Handicap & Society* 1991 6/2 111.

⁵³ *ibid* 108.

⁵⁴ Jenkins R., “Disability and social stratification”, *British Journal of Sociology*, 1991 Dec, 557-580.

SUMMARY – SOCIAL ANALYSIS

Two strong themes dominate the social analysis of disability. The first and paramount theme is the rise of the Disability Movement. Inspired by the success of movements for racial and gender equality, and fuelled by the influx of war veterans, the Disability Movement provides the context for the legal and policy changes that were to come. People with a disability at last came out from the shadows, at least in the USA.

For our purposes we can note that the Disability Movement has focused much of its attention on the issue of employment, in particular on the passing of anti-discrimination legislation. This policy thrust is based on the assumption that discrimination by employers is the major impediment to the greater employment of people with disabilities. In the area of technology we can note the emphasis of the Disability Movement on *access* – to buildings, transport and venues. There has been little attention given to access by people with disabilities to computer technology. It may be that the Disability Movement in the USA had run its course with the passing of the *ADA* in 1990, around the time that personal computers began to make their presence felt in the workplace.

The second major theme has been a growing consensus that approaches to disability stressing personal inadequacy or functional limitation must give way to a social approach, i.e., one that sees disability as the result of a failure on the part of society to design its facilities and structures in an inclusive fashion. A person's impairment *becomes* a disability when society designs its structures and facilities in a way that excludes people who are not able-bodied.

Given our focus on employment and technology, we can note that this changing definition of disability throws the spotlight onto the workplace itself, on the ways in which jobs are designed and the accommodations employers make. It is not simply a matter of the person with a disability having to “adapt”.

As we shall see, these two key themes are echoed in the other disciplines.

Law and Public Policy

GENERAL

There is a sense in which the issue of disability and employment inevitably comes to focus on government law and policy. Whatever the approach and pathway one takes to address this issue, the call for reform must of necessity be expressed in terms of new laws or public programs. This should not be surprising. The care and welfare of people with a disability has been an issue left to government. Because many people with a disability have been unable to earn their own income, they have been dependent on social welfare. Government programs have covered all aspects of the lives of people with a disability, including personal care, health, accommodation, transport, special equipment, and also employment.

In this section no attempt will be made to analyse in detail the substantive issues of legislation and policy, except as necessary to comment on issues raised in the literature. Our concern in this chapter is to identify the extent and nature of the discussion in the legal literature. What issues have been dominant? How have they been discussed?

DISABILITY LEGISLATION IN THE USA

It would be fair to say that legislative changes in the USA since the 1970s have been the major influence shaping legislative and related policy changes throughout the Western world. The significance of the *Rehabilitation Act of 1973* (s 504) should not be underestimated. This section prohibits the federal government and those who receive federal financial assistance from discriminating against people with disabilities in employment. It was modelled on parts of the *Civil Rights Act of 1964*. It “represented the first major break from the widely held assumption that people with disabilities were unemployable.”⁵⁵

If the instigation of the *Rehabilitation Act of 1973* was significant, its impact was “less than spectacular”.⁵⁶ It got off to a slow start, as the implementing regulations were not issued until 1978. It has been criticised for being too vague with regard to the concept of “discrimination”, with the result that the burden of clarification and interpretation was left to the courts and administrative agencies.⁵⁷

Many states in the USA enacted civil rights statutes to replicate or even extend the provisions of the *Rehabilitation Act of 1973*. In some cases the laws were widened to include private sector employees as well. By the end of the 1980s all states had some protection against discrimination in employment on the basis of disability.⁵⁸

However it has been the enactment of the *Americans with Disabilities Act of 1990* (ADA) that has aroused the most discussion in the literature. Even though many employers would have been familiar with concepts such as

⁵⁵ Morin E., “Americans with Disabilities Act of 1990: Social integration through employment”, *Catholic University Law Review* 1990 40, 189-213, 189.

⁵⁶ *Harvard Law Review* (editorial note) 1984, 97, 997-1015, 997.

⁵⁷ *ibid* 999.

⁵⁸ Mudrick N., “Employment discrimination laws for disability: Utilization and outcome”, *Annals of the American Academy of Political and Social Science* 1997, 549 Jan, 53-70.

“reasonable accommodation” from state laws and the *Rehabilitation Act of 1973*, nevertheless the trade and industry journals were buzzing with both fears and reassurances regarding the impact of the new legislation.

In essence the ADA prohibits discrimination against “any qualified individual with a disability because of such disability in regard to job application procedures, hiring or discharge of employees, employee compensation, advancement, job training, and other terms, conditions and practices of employment”.⁵⁹ Employers are required to make “reasonable accommodations” unless such would “impose undue hardship on the operation of the business”.⁶⁰ Such accommodations include job restructuring, altered work schedules, acquisition or modification of equipment, modifications to training materials and changes to policies.

The ADA was implemented in a gradual fashion. It came into force for employers with 25 or more employees in 1992; for employers with 15-24 employees, it came into effect in 1994.

Early articles were descriptive, outlining the key features of the new legislation.⁶¹ Several studies compared the ADA with previous civil rights legislation. Mudrick, for example, highlights some of the differences in the ADA compared with civil rights legislation based on race or sex: that eligibility needs to be determined, the concept of “reasonable accommodation” and the need to make decisions on a case-by-case basis.⁶²

Strong opposition to the ADA has arisen, as the pattern of cases has become more evident. Vigorous ridiculing of the ADA has emerged in journals such

⁵⁹ 42 U.S.C. Sect. 12112(a).

⁶⁰ 45 C.F.R. Sect. 84.12(b).

⁶¹ For example, Mello J., “Employing and accommodating workers with disabilities: Mandates and guidelines for labor relations”, Labor Law Journal 1993 March 163-170; Weirich C., “Reasonable accommodation under the Americans with Disabilities Act”, The Labor Lawyer, 1991, 11, 27-36.

⁶² Mudrick op cit.

as *Wall Street Journal*⁶³ and *Forbes*⁶⁴, highlighting extreme cases and unintended outcomes. Clegg has pointed out that 92% of ADA complaints have been rejected in court, but that the process of defending such an action is very costly to employers. He argues that the cost of reasonable accommodations should be borne by the community as a whole, through government reimbursement or tax credit, and not just by employers.⁶⁵

Many in the disability sector strongly support the ADA. Dugan points out that the number of people with a disability who are employed rose by 1.13 million between 1991 and 1994. He also quotes a study by Sears Roebuck of the 436 reasonable accommodations made by the company between 1978 and 1992: 69% had no cost, 28% cost less than \$1,000 and only 3% cost more than \$1,000.⁶⁶ In a 1995 Mason-Dixon poll 87% of businesses that have employed people with disabilities would encourage other employers to do the same. In a Harris poll in the same year 89% of senior corporate executives and their employees supported policies to increase the number of people with disabilities in their companies. The employment rate for people with severe disabilities reportedly increased from 23.3% in 1991 to 26.1% in 1994 — an increase of 800,000.⁶⁷

However others in the disability community have been less than impressed with the ADA. It has been criticised for overlooking the need for changes in the structure and nature of jobs, and for the fact that it “stimulates the employment of workers who have the least serious disabilities and the

⁶³ As reported by Colker R., “Affirmative action, reasonable accommodation and capitalism: Irreconcilable differences?” in Hauritz M. et al., *Justice for People with Disabilities* 1998, Federation Press, Sydney.

⁶⁴ Frum D. and Brennan J., “Oh my aching...you name it” *Forbes* 1993, April 26, 52-54; Frum D., “Oh, my aching back (head)” *Forbes* 1993, November 8, 64.

⁶⁵ Clegg R., “The costly compassion of the ADA”, *Public Interest* 1999 Summer, 100-112.

⁶⁶ Dugan M., “Is the ADA working?” *Inside MS* Fall 1997/Winter 1998, 15/3, 22-23.

⁶⁷ Figures reported in an address by Tony Coelho, Chairman of the President’s Committee on Employment of People with Disabilities to the Colorado Leadership Luncheon, Denver, 10 April 1997.

strongest education, training and job skills".⁶⁸ Most cases (52%) involve people who have been dismissed from a job and only 10% were complaints of a failure to hire. The single largest group of complainants were those with back problems (19%), with the next groups being those with emotional or psychiatric impairments (12%), then neurological impairments (11%). This is hardly the pattern that advocates of the ADA had anticipated. Mudrick argues that the employment and wage outcomes of the ADA are not yet clear,⁶⁹ but more recent studies are now becoming available.

Lee and Thompson report that the proportion of employed people with disabilities has not changed between 1986 and 1995; in one study, the proportion had actually declined.⁷⁰ Most cases brought before the EEOC involved dismissals (52%). The disabilities were not those mentioned in congressional debates about the ADA, but rather back impairments, emotional or psychiatric impairments and neurological impairments. The statistics demonstrate that "currently employed or previously employed workers (90% of the charges), a substantial proportion of whom may have developed disabilities during their employment, are using the law to challenge perceived discrimination".⁷¹

They also point out that between 1992 and 1997, of the employment matters that were resolved, 38% were closed administratively, 48% resulted in a finding of no discrimination, 6% were withdrawn with benefits and 5% were settled. "Only 2.7% resulted in a finding of reasonable cause to believe that discrimination had occurred".⁷²

⁶⁸ Burkhauser R., "Beyond Stereotypes - Public Policy and the Doubly Disabled", The American Enterprise, 1992, Sept/Oct, 60-69

⁶⁹ Mudrick op cit.

⁷⁰ Lee B. and Thompson R., "Reducing the consequences of disability: Policies to reduce discrimination against disabled workers", in Thomason T. et al. (eds), New Approaches to Disability in the Workplace (1998) op cit. Chapter 6, 161.

⁷¹ ibid 163.

⁷² ibid.

More recent studies have confirmed a dismal view of the performance of the ADA and a re-evaluation of its role. Batavia and Schriener, for example, argue that “the ADA alone cannot win the war”.⁷³ Expectations regarding the ADA may have been misplaced:

The rhetoric of disability rights advocates often suggests that, if we eliminate discrimination and remove barriers, people with disabilities will be able to function as well as people without disabilities. Common sense suggests this is not necessarily the case.⁷⁴

Although they concede that the ADA may have a positive impact in the long term by influencing employer attitudes, this will be a slow process. There is also the danger, they argue, that attempts to force greater compliance may “backfire”, with employers concluding “that the best way to avoid liability damages is to avoid hiring people with disabilities in the first place”.⁷⁵

Wells argues that both employment and earnings for people with disabilities have fallen over the past decade, at a time of labour shortage and low unemployment.⁷⁶ She suggests a number of possible explanations, including easier access to social security payments, the changing nature of modern jobs, persistent attitudinal barriers and fear of litigation. She quotes figures from the Equal Employment Opportunity Commission that indicate a total of 125,946 cases were filed between July 1992 and September 1999. Of these 52% were dismissed as having “no reasonable cause”. Of the cases going to

⁷³ Batavia A. and Schriener K., “The Americans with Disabilities Act as engine of social change: Models of disability and the potential of a civil rights approach”, Policy Studies Journal 2001, 29/4, 690-702, 691.

⁷⁴ ibid 692.

⁷⁵ ibid 698.

⁷⁶ Wells S., “Is the ADA working?” HR Magazine 2001 April, 38-46.

litigation, 95.7% are won by the employers. Only 10% of claims concern hiring.⁷⁷

Perhaps Mudrick's conclusion is close to the mark:

It may be that both sides have overestimated the potential impact of the ADA. Employers have overestimated the costs and difficulties of complying with the law, and people with disabilities have overestimated the ability of a civil rights act to significantly alter employment rates and circumstances.⁷⁸

Before leaving the US scene mention should be made of other relevant pieces of legislation. We have already mentioned the historical importance of the *Rehabilitation Act of 1973*. This Act has been amended significantly, in 1978, 1986, 1992 and most recently in 1998 (in the shape of the *Workforce Investment Act of 1998*)⁷⁹. These amendments have strengthened consumer involvement and given greater prominence to technology. The latest amendment, for example, requires all Federal departments and agencies, "when developing, procuring, maintaining, or using electronic and information technology", to ensure that it is accessible both to employees and members of the public seeking information or services (§ 508).

The *Ticket to Work and Incentives Improvement Act of 1999* allows people with disabilities to maintain their health care coverage if they return to work. It also provides them with vocational rehabilitation and employment services.

Finally, and most importantly for our purposes, we can note the *Technology-Related Assistance for Individuals with Disabilities Act of 1988*, reauthorised recently as the *Assistive Technology Act of 1998*.⁸⁰ It is administered by the National Institute on Disability and Rehabilitation Research (NIDRR). It provides funds for the development of State programs and projects to

⁷⁷ *ibid.*

⁷⁸ Mudrick *op cit.*

⁷⁹ PL 105-220, 1998 HR 1385.

⁸⁰ PL 105-394, 1998.

provide technology assistance to people with disabilities and to train service providers and people with disabilities in the application of assistive technology.

The original *Tech Act* has been criticised in its implementation for lack of resources and trained personnel.⁸¹ Yet the vision of this legislation is inspiring. The 1998 Act notes in its preface:

Substantial progress has been made in the development of assistive technology devices, including adaptations to existing devices that facilitate activities of daily living, that significantly benefit individuals with disabilities of all ages. Such devices and adaptations increase the involvement of such individuals in, and reduce expenditures associated with, programs and activities such as early intervention, education, rehabilitation and training, employment, residential living, independent living, and recreation programs and activities, and other aspects of daily living.⁸²

It is a vision that has failed to materialise in the Australian context, as we shall see later.

We can note the complete lack of discussion of these pieces of legislation in the legal literature.

AUSTRALIA - THE DISABILITY DISCRIMINATION ACT 1992

Uncertainties regarding the ADA did not stop Australia from enacting broadly similar legislation in 1992. However this legislation has not aroused the same response in the literature as that inspired by the ADA in the USA.

Prior to the enactment of the *Disability Discrimination Act 1992* (DDA) there had been minimal attention given to disability aspects of anti-discrimination

⁸¹ Wallace J. et al., "Legislative Foundation of Assistive Technology Policy in the United States", Chapter 1 in Flippo K. et al. (eds), Assistive Technology – A Resource for School, Work and Community 1995, Paul H. Brookes, Baltimore, 3-21.

⁸² Section 2 (a) (4).

legislation. However Northdurft and Astor in 1986 examined the *New South Wales Anti-Discrimination Act 1977*.⁸³ In 1981 this Act was extended to cover physical disability. They praised the Act: "This legislation is amongst the most advanced on the subject to be found anywhere in the world".⁸⁴ However they were critical of many aspects of its operation, including its complaint basis, problems of proof, high costs for claimants and poor publicity. They point out that the legislation was designed to deal with discrimination on the basis of race and sex, and incorporates an ideology of "equal treatment". However "equal treatment may well not secure equity of opportunity for people with disabilities".⁸⁵ They call for the borrowing of the concept of "reasonable accommodation" from the *Rehabilitation Act of 1973*, which would "allow the needs of the person with the disability to be accommodated without at the same time causing undue hardship to the employers, landlords and others".⁸⁶

Astor developed these themes in a subsequent article in 1990, where she identifies "significant flaws" in the legislation in New South Wales, Victoria, South Australia and Western Australia.⁸⁷ She notes problems with the definitions of *disability* and *discrimination*, and with the fact that the judgement as to whether or not a person could do the job was not based on an objective standard of *reasonableness* but was reliant on how the matter "appeared to the employer".⁸⁸ She concludes: "there is substantial room for improvement".⁸⁹

⁸³ Northdurft J. and Astor H., "Laughing in the Dark: Anti-Discrimination Law and Physical Disability in New South Wales", *Journal of Industrial Relations*, 1986, Sep, 336-352.

⁸⁴ *ibid* 352.

⁸⁵ *ibid* 341.

⁸⁶ *ibid*.

⁸⁷ Astor H., "Anti-discrimination legislation and physical disability: The lessons of experience" *Australian Law Journal* 1990, 64, March, 113-128.

⁸⁸ *ibid* 123.

⁸⁹ *ibid* 128.

The DDA followed soon after. However it has prompted minor interest in the local legal literature, apart from an early assessment by Tyler.⁹⁰ She argues that the legislation continues Australia's reliance on a complaint-based system rather than "the 1990 *Americans with Disabilities Act* that is based broadly upon the setting of standards".⁹¹ While she is positive regarding the overall prospects for the legislation, especially in regard to contributing to a change in attitudes, and sees it as a step forward, she believes publicity and education will be vital accompaniments.

Since that time some recent Federal Court and High Court cases concerning issues such as "inherent requirements" of a position have prompted comments in the legal literature.⁹²

Tucker's comparison between the DDA and the ADA raises some important issues.⁹³ She notes that the ADA arose as a civil rights issue, whereas in Australia the DDA did not result from pressure from the local disability sector. This is true. Some community consultations took place following the ministerial announcement regarding the DDA on 11 June 1991. Prior to that the issue had been widely supported as part of the consultations conducted by Ronalds.⁹⁴ But certainly the final process was rushed, with the legislation introduced in early 1992. The fact remains that public awareness of the DDA is low compared with the ADA in the USA. In its first year, a total of

⁹⁰ Tyler M., "The Disability Discrimination Act 1992: Genesis, drafting and prospects" Melbourne University Law Review 1993, 19, 211-228.

⁹¹ ibid 224.

⁹² See Hauritz op cit.; Cooper J. and Dalton R., "Inherent requirements of the particular position" Australian Company Secretary 1996 48/7, Aug 301-302; McCallum R., "Before the High Court: Labour law and the inherent requirements of the job: Qantas Airlines Ltd v. Christie: the High Court of Australia: boarding at gate seven" Sydney Law Review 1997 19/2, June, 211-219; Bernardi G., "X v. Commonwealth" Journal of Law and Medicine 2000 7/4, May, 355-360; Hirst M., "X v The Commonwealth: 'inherent requirements' and the HIV soldier: casualties of the anti-discrimination battlefield" University of Queensland Law Journal 2000 21/1, 102-109.

⁹³ Tucker B., "Overview of the Disability Discrimination Act and comparison with the Americans with Disabilities Act", Australian Disability Review 1994, 3, 23-37.

220 complaints were made under the DDA; in the first 18 months of the ADA there were over 16,000 complaints in the area of employment alone. Further:

Immediately after the ADA was passed employers, owners and operators of places of public accommodations and transportation systems, educational institutions, and the like began making necessary modifications in their enterprises to comply with the law. That has yet to happen in Australia, even though it is more than a year since the DDA became effective.⁹⁵

Tucker notes, quite importantly, that the ADA was supported with a system whereby employers had access to information on relevant accommodations, through the funded *Job Accommodation Network*. No such support has been offered to Australian employers in a situation where, due to our smaller industry base and dispersed population, it could be argued the need is greater. This is also a problem noted by the then Disability Discrimination Commissioner, Chris Sidoti, in a speech in 1998.⁹⁶

Tucker states that the treatment of the concept of *reasonable accommodation* is the same in both the ADA and the DDA.⁹⁷ However this is not the case. The DDA does not use the term *reasonable accommodation* at all (the reference to *accommodation* in the key section 5 (1) refers to “residential or business accommodation” (as per 4(1)). Its treatment of adjustments required by the employer is far more subdued and indirect. While the Human Rights and Equal Opportunity Commission (HREOC) web site discusses the concept of

⁹⁴ Tyler *op cit.*, 218-219.

⁹⁵ Tucker *op cit.*, 25. Some minor commentary did arise in trade and business journals, for example *IRM* February 1995, 11-14 and April 1995, 3-7.

⁹⁶ Sidoti C., “The DDA and employment of people with a disability” 26 Sep 1998, available at http://www.hreoc.gov.au/disability_rights/speeches/Employment_98/employment_98.html

⁹⁷ Tucker *op cit.* 28.

reasonable adjustment at length, it is forced to acknowledge: “The term ‘reasonable adjustment’ is not contained expressly in the D.D.A.”.⁹⁸

In the ADA, the key section (102) is structured as follows:

(a) *No covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to (...various aspects of employment).*

(b) *...the term “discriminate” includes:*

(1) (2) (3) (4)

(5) (A) *Not making reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, unless (...undue hardship)*

The requirement to make *reasonable accommodation* is on the front line of what it means to discriminate. It is prominent and powerful.

In the DDA, by comparison, the structure of the relevant provision is as follows:

15 (1) *It is unlawful for an employer...to discriminate against a person on the ground of the other person’s disability... (in various aspects of employment)...*

(4) *(Such discrimination is not unlawful if, taking into account the person’s relevant training, qualifications and experience) the person, because of his or her disability:*

(a) *would be unable to carry out the inherent requirements of the particular employment; or*

(b) *would, in order to carry out those requirements, require services or facilities that are not required by persons without the disability, and the provision of which would impose an unjustifiable hardship on the employer.*

⁹⁸ HREOC,

http://www.hreoc.gov.au/disability_rights/faq/Employment/employment_faq_1.html#adjustment

In other words, there is no up-front requirement for employers in Australia to make *reasonable accommodations* for employees or prospective employees with a disability. No definitions are provided as to what types of adjustments an employer is supposed to make. The issue only arises as a defence, to enable an employer to discriminate lawfully!

The HREOC argues that the DDA definitely requires employers to make reasonable adjustment: "The general requirement under the DDA to make reasonable adjustment results from DDA section 6, on indirect discrimination. This section requires the removal of unreasonable requirements which disadvantage people with a disability".⁹⁹ This is hardly convincing.

Recent cases have confused rather than clarified the matter. Eastman notes:

The common understanding of the *Disability Discrimination Act* has been that it does not impose a positive obligation on employers to provide special facilities or equipment that are not provided to employees without a disability. The only obligation on an employer is not to treat the disabled employee less favourably than employees without a disability.¹⁰⁰

However a recent case¹⁰¹ has challenged that:

The Commission noted that the obligation to accommodate a disabled employee is integrally linked to an employer's common law duty to provide a safe system of work for all employees. Where a disabled employee requires special facilities to make the workplace safe, the employer is required to make the additional facilities available to guarantee a safe system of work.

The reasoning of the Commission involved, according to Eastman, borrowing the concept of *reasonable accommodation* from the ADA. In her view, "Importing the notion of reasonable accommodation into the *Disability*

⁹⁹ *ibid.*

¹⁰⁰ Eastman K., "Off the ground: Employers' obligations towards disabled employees" *Law Society Journal* 1999 37/8 Sep, 38.

¹⁰¹ *Garity v Commonwealth Bank of Australia* (1999) EOC 92-966.

Discrimination Act will generate much controversy.” This is because the “undue hardship” defence for employers only applies in the recruitment and termination of employment, not in the conditions of employment. The result now is that employers seemingly have an open-ended obligation to provide *reasonable accommodation* for their disabled employees, but without any concept of *undue hardship* to moderate or limit such responsibility. This decision, she argues, “creates uncertainty”.

The concept that has become the lynchpin of the US legislation has a contentious presence in the DDA. Even if attempts by the HREOC and the Federal Court to assume into existence such a concept are successful, such would occur quietly, as it were by the back door, without disturbing the consciences of employers or anyone else. So what many regard as the centrepiece of the ADA is perhaps the weakest part of our DDA. It is a flagpole without a flag.

This is of critical importance for this study, because in the USA it has been through the *reasonable accommodation* requirement that assistive technology has become a prominent workplace concern. The Australian legislation provides no such pathway.

There was considerable expectation that the meaning of the DDA would be clarified through the release of Disability Standards. However that expectation has been dashed. The Draft Standards on Employment have sat around for over six years following their release in 1996. Extensive consultations have failed to bring consensus. As the Commissioner remarked, “there are limits to how much frustration should be endured before deciding that enough effort dedicated to one approach is enough”.¹⁰² He regards the reference material available on the HREOC web site as

¹⁰² Sidoti, *op cit.*

-serving the general purpose envisaged for the Standards (without the legal force, however).

He also concedes that there has been no proper evaluation of the DDA and admits that “a frank assessment requires saying that such evidence as exists is not encouraging”. He notes: “overall employment rates for people with a disability do not appear to have improved markedly since the passage of the DDA” and that “representation of people with a disability within Commonwealth employment has in fact decreased”.¹⁰³ We might add that the proportion of people with a disability employed in the NSW public sector has fallen also, from 7% in 1999 to 6% in 2000.¹⁰⁴ The success of the DDA, as with the ADA, has been very limited.

We can note that there has been no attempt in Australia to enact legislation concerning assistive technology, in spite of the passing of 14 years since the original *Tech Act* in the USA. It represents a serious blind spot in Australian legislation and policy.

OTHER COUNTRIES

There is obviously not scope here to review the legal literature covering disability legislation throughout the world. But it does appear that, as in Australia, disability matters are not prominent in the literature in any country apart from the USA. Comparisons of the disability legislation in different countries, such as that by Lunt and Thornton, are rare but especially welcome.¹⁰⁵

¹⁰³ ibid.

¹⁰⁴ Figures from www.eeo.nsw.gov.au/stats/pwd00.htm

¹⁰⁵ Lunt N. and Thornton P., Employment Policies for Disabled People: A Review of Legislation and Services in Fifteen Countries 1993, York University.

SUMMARY – LAW AND PUBLIC POLICY

Even though disability legislation has not been a major concern in the legal literature, it can be noted that statutes such as the *Americans with Disabilities Act of 1990* provide symbolic rallying points for the Disability Movement and in some respect measure their success. On the other hand, there can be some legitimate doubt expressed regarding the success of such legislation in achieving the goals they set out to achieve. They are a bit like shooting at a target of unknown shape, confident that you are hitting part of the target, but not knowing whether you've hit a large part or a small part, a significant part or a minor part.

But while the ADA has seized the limelight since its enactment, we should acknowledge the importance of the *Rehabilitation Act of 1973* as a great turning point for people with disabilities. At last the employment potential of people with a disability was identified and actively supported. It marks the beginning of a new era for the employment of people with a disability.

In the Australian context the *Disability Discrimination Act 1992* was bought relatively cheaply. It can hardly be argued that this legislation arose because of the strength of a local disability movement. It began with a whimper more than a bang. As we have seen, it is deficient in a key area – that of the accommodations employers are required to make for employees with a disability. This prevents assistive technology concerns from becoming prominent at the workplace. Further, we note that the substantial employer support available through information services such as the *Job Accommodation Network* in the USA did not eventuate in Australia. If the ADA failed to meet the expectations of many, the DDA must surely rank as a great disappointment in its capacity to increase the welfare of people with a disability in the workplace in Australia.

We have also noted the lack of any Australian equivalent to the *Assistive Technology Act of 1998* and the complete absence of any other assistive technology legislation in this country.

Economics

GENERAL APPROACHES

There has been an active focus on issues related to disability and employment within economics. Attention has been given to issues such as wage and employment discrimination, productivity, the economic effects of the ADA and (especially) the impact of social security benefits on the employment and income of disabled workers. While it may not rank as a major issue, it does rate as an issue of more than passing interest. In each of the past three decades there have been substantial books published that address this field specifically.¹⁰⁶

Berkowitz and Hill pose the question, “What do economists have to contribute to our understanding of work disability?”¹⁰⁷ They answer that the contribution is “potentially large” and proceed to nominate several issues:

¹⁰⁶ Levitan S. and Taggart R., Jobs for the Disabled, 1977, The John Hopkins University Press, London; Burkhauser R. and Haveman R., Disability and Work: The Economics of American Policy, 1982, Baltimore: John Hopkins University Press; Berkowitz M. and Hill M (eds), Disability and the Labor Market - Economic Problems, Policies and Programs, 1986, ILR Press, Cornell University; Thomason T. et al. (eds), New Approaches to Disability in the Workplace, 1998, Ithica, Cornell University.

¹⁰⁷ Berkowitz M. and Hill M., “Disability and the Labor Market – An Overview”, in Berkowitz M. and Hill M (eds), op cit 1.

- ♦ The state of the labour market and other socio-economic variables should be considered in understanding how disability results in withdrawal from the labour market;
- ♦ To understand what factors that determine when and under what conditions a person with a disability will seek and receive social security benefits;
- ♦ The economist is also concerned with the impact of various government support programs on firms' costs;
- ♦ The efficiency of various employment support programs can be assessed by economists using standard public finance tools.

They note: "the economist's concern with disability begins with the recognition that our country faces considerable losses because of disability".¹⁰⁸ This loss, of course, is more than just the lost productive input of the person with a disability. It also includes the lost input from those family members who must care for them.

One of the first books devoted to disability from an economic perspective was Jobs for the Disabled, by Levitan and Taggart in 1977.¹⁰⁹ It considered the employment experience of people with a disability, the vocational rehabilitation system and a number of economic issues relating to the vocational rehabilitation "investment" made by society.

Wolfe notes in her research summary in 1980: "increasing attention is being paid to the disabled... yet little is known about the disabled."¹¹⁰ She examines a number of labour force characteristics of the disabled, including

¹⁰⁸ ibid 3.

¹⁰⁹ Levitan S. and Taggart R., op.cit.

¹¹⁰ Wolfe B., "How the Disabled Fare in the Labor Market", Monthly Labor Review 1980, 103/9, Sep, 48-52.

their participation, occupation and wage rates. She concludes that “the disabled are much worse off in terms of education, probability of working, occupation and wage rates, in spite of controlling for many characteristics important in explaining differential wage rates”.

Disability and Work: The Economics of American Policy, by Richard Burkhauser and Robert Haveman, was published in 1982.¹¹¹ The central question examined is “Who shall bear the cost of disability?” In America, they argue, this question has been answered by the implementation of what they call a de facto “workers’ disability income system”. They examine the economic effects of income support programs and include some discussion on sheltered workshops and the civil rights movement for people with a disability.

Berkowitz and Hill edited a collection of papers published in 1986.¹¹² The articles examine issues such as the impact of disability insurance on labour participation, the efficiency and effectiveness of job creation programs for the disabled, the impact of regulations such as those opposing discrimination, and some international comparisons. They continue the traditional areas of focus by economists in this area; at the end of their introductory chapter they comment: “Our purpose will be served if these contributions aid and inform the policy maker and the administrator charged with responsibilities in the disability area.... At the same time, we hope that the obvious work still to be done stimulates the economists and other social sciences to see this area as a fruitful one for further research.”¹¹³

¹¹¹ Burkhauser R. and Haveman R. op cit.

¹¹² Berkowitz M. and Hill M (eds), op cit.

¹¹³ ibid 28.

DISCRIMINATION

One of the key issues addressed by economists concerns *discrimination*. Here some of the tools used by economists to analyse discrimination against racial minorities and women have been put to new use.

The main early contributions came from William Johnson. He has been critical of legal approaches to discrimination that overlook economic realities. For example, they may add costs to employers and inhibit the employment of people with a disability; they may focus on the employment of people with a disability but neglect wage discrimination; and they may ignore the fact that, unlike the situation with other minorities, disabilities may actually affect productivity.¹¹⁴

Discrimination is defined in economic terms: it occurs if a person is paid less than the dollar value of their output. In the case of people with a disability it can occur because of employer prejudice or because of inadequate information (leading the employer to make incorrect assumptions about a worker's productivity). If an employer has to incur extra costs in employing someone with a disability, and pays a lower wage to compensate for these costs, then this is not discrimination in the economic sense.

Discrimination affects both wages and employment. It produces lower wages that in turn provide a disincentive to seek work.

Johnson and Lambrinos estimated that 35% of the wage differential between handicapped and non-handicapped workers was due to discrimination.¹¹⁵ Other factors included years of education, experience with present job, experience in other jobs, period of unemployment, and health status. Their study was based on 1972 data. They probably underestimate the total effect

¹¹⁴ Johnson W. and Lambrinos J., "Employment Discrimination", *Society*, 1983, Mar-Apr 47-50.

¹¹⁵ *ibid.* See also Johnson W. and Lambrinos J., "Wage Discrimination Against Handicapped Men and Women", *Journal of Human Resources* 1985 20/2, 264-277.

of discrimination because “years of education” almost certainly embodies previous social discrimination.¹¹⁶ They also found that discrimination against workers with handicaps “reinforces sex discrimination”.¹¹⁷

They are critical of legal approaches to discrimination, which create uncertainty and costs for the employer. They also criticise government information programs that overstate the productivity of disabled workers and make employers cynical: “it is unrealistic to lead employers to expect that the average handicapped person is substantially superior to the average nonhandicapped person”.¹¹⁸

Vocational rehabilitation, which aims at placing people with a disability in jobs, tends to overlook what happens to the person after they are employed. Johnson and Lambrinos argue that wage discrimination can reduce the value of rehabilitation programs. It does this by reducing incentives to work and reducing wage outcomes (which are often used to measure the success of rehabilitation programs).¹¹⁹

In a later article Johnson distinguishes several different types of discrimination.¹²⁰ *Statistical discrimination* occurs when employers utilise stereotypes to estimate the productivity of different categories of workers.¹²¹ This can be remedied by giving employers more information about the productivity of workers with a disability, or by employers learning this for themselves over time through their own experience in employing people with a disability.

¹¹⁶ See Scheffler R. and Iden G., “The Effect of Disability on Labor Supply”, Industrial and Labor Relations Review, 1974, 28/1, October, 122-132

¹¹⁷ Johnson and Lambrinos (1985) op cit. 275.

¹¹⁸ Johnson and Lambrinos (1983) op cit. 50.

¹¹⁹ Johnson and Lambrinos (1985) op cit. 275-6.

¹²⁰ Johnson W., “The Rehabilitation Act and discrimination against handicapped workers: Does the cure fit the disease?”, in Berkowitz M. and Hill M (eds), op cit.

¹²¹ This notion comes from Phelps’ earlier work. See Phelps E., “The statistical theory of racism and sexism”, American Economic Review 1972, 62, Sept, 659-61.

A second type of discrimination is called *monopsonistic discrimination*. In this case the fact that an employee with a disability faces barriers to mobility between jobs, or has received accommodations that they may not get somewhere else, may mean that the employer can pay them a better wage than elsewhere but still less than their productivity. This is discrimination in an economic sense but not in a legal sense.

Finally there is *prejudice*. In theory, Johnson argues, “market forces should eliminate much of the problem”.¹²² This is because non-prejudiced firms will gain an advantage by employing the disabled workers at wages below their productivity. The system should self correct, he argues.

Some of these themes were revisited by Johnson and Lambrinos in a later article.¹²³ Here they tried to estimate the effects of prejudice on wages by using Tringo’s social distance scale for various disabilities. This is an interesting attempt to refine the economic analysis by incorporating disability variables and data. They concluded: “The results strongly support the hypothesis that wage differences among impaired men vary with the degree of prejudice against the workers’ impairments”.¹²⁴ There is no attempt to reconcile this finding with Johnson’s earlier notion of the self-correcting market mechanism.

Baldwin and Johnson published some important research on discrimination using 1984 data.¹²⁵ They also sought to incorporate social data on prejudice in categorising workers as “non-disabled” (without impairments), “disabled” (with impairments which are subject to little or no prejudice) and “handicapped” (with impairments which are subject to greater prejudice).

¹²² Johnson W. *op cit.* 255.

¹²³ Johnson W. and Lambrinos J., “The effect of prejudice on the wages of disabled workers”, *Policy Studies Journal* 1987 15/3 March, 571-590.

¹²⁴ *ibid.* 584.

¹²⁵ Baldwin M. and Johnson W., “Labor Market Discrimination Against Men with Disabilities”, in *The Journal of Human Resources*, 1994 29/1, Winter, 1-19.

They found a substantial wage differential between non-disabled and handicapped men: 33.2% of the non-disabled wage. Of this, 18.5 percentage points can be explained by human capital and job related characteristics of the men; the remaining 14.7 percentage points they attribute to discrimination.

In the case of disabled men, the wage differential was only 6% of the non-disabled wage. They do not believe that wage discrimination for this group can be explained by prejudice. Rather the discrimination comes in the form of "below average returns to work experience".¹²⁶ This is explained by the workers' loss of labour market mobility, which reduces the employer's incentive to pay them competitive wage increases. Importantly, they conclude that prejudice is not a significant problem for 80% of employed men with impairments (taking into account both the handicapped and disabled groups).

The study also noted that wage discrimination had an impact on employment, with an estimated 11,000 handicapped men and 9,500 disabled men deterred from entering the work force. However this is only 2 percentage points of the 29% difference between the employment rates of handicapped and non-disabled men.

Finally the study was able to draw some comparisons between the 1972 and 1984 data. This period of comparison is important because it gives an opportunity to measure the impact of the *Rehabilitation Act of 1973*. They found that the wage differentials were significantly larger in 1984: 33.2% as against 11.5% in 1972. However they found an increase in the employment rate for both handicapped and disabled men: from 37% to 67% for the

¹²⁶ *ibid* 11.

former and from 59% to 79% for the latter – what they refer to as a “remarkable achievement”.¹²⁷

This type of study is to be welcomed, as it makes some attempt to differentiate groups of people with disabilities rather than treating them as a single, homogeneous group.

Johnson and Baldwin applied the torch of economic analysis to the *Americans with Disabilities Act of 1990*.¹²⁸ They note that the ADA was not guided by any empirical analysis regarding discrimination. The critical issue is “the extent to which the lower employment rates and lower wages of persons with disabilities are the result of employers’ prejudices rather than of limitations on productivity imposed by mental or physical impairments”.¹²⁹

They note that although wage discrimination did not change following the *Rehabilitation Act of 1973*, there was a significant and “not well understood” change in employment between 1972 and 1984. This article then proceeds to review the available studies on statistical discrimination and prejudice.

A different approach to the issue of discrimination was pursued by Hallock et al.¹³⁰ They note that studies of wage discrimination may face a selection problem, as those most severely discriminated against may drop out of the labour force or be unemployed. Their study, which involved comparing workers’ perceptions of discrimination against statistical data on discrimination, showed that wage discrimination might not be the main form in which discrimination is perceived by workers with disabilities. Issues such as promotion can be more important to those concerned. In other

¹²⁷ *ibid* 13.

¹²⁸ Johnson W. and Baldwin M., “The Americans with Disabilities Act: Will it make a difference?” *Policy Studies Journal* 1993 21/4, 775-788.

¹²⁹ *ibid* 776.

¹³⁰ Hallock K., Henricks W. and Broadbent E., “Discrimination by gender and disability status: Do worker perceptions match statistical measures?” *Southern Economic Journal* 1998 65/2 Oct, 245-263.

words, the economic focus on wages and employment does not fully exhaust the notion of discrimination from an economic perspective.

Two recent studies complete our survey of the economic literature on discrimination. Baldwin and Johnson revisit this topic, and again they examine the ADA.¹³¹ They argue that the prejudice on which the ADA is premised is well documented, but “the extent to which prejudice is translated into employment and wage differentials is not”.¹³² Unexplained wage differentials between workers with disabilities and those without disabilities will include unmeasured differences in productivity. They argue that employment is a bigger problem than wage discrimination, and it is on this basis that they believe the ADA should be judged.

The final study in this survey examines those in the Survey of Income and Program Participation who self-report that their productivity is not affected by their impairments.¹³³ By studying this group De Leire hoped to be able to isolate the impact of discrimination. Only 3.7 percentage points of the earnings gap was possibly due to discrimination in 1984, and this rose to 5.4 percentage points difference in 1993. However an error arises when the author takes these estimates of the effect of discrimination and applies them to those with higher level functional limitations. For example, the 3.7 percentage point figure is deducted from a 53.6 percentage point overall unexplained wage difference, leaving 49.9 percentage points as being due to “health characteristics”. This completely ignores the conclusion of previous studies that show how more severe disabilities elicit greater discrimination.

The economic approach to discrimination is useful. It provides tools that clarify the key issues involved. It is also interesting to observe how

¹³¹ Baldwin M. and Johnson W., “Labor market discrimination against men with disabilities in the Year of the ADA”, Southern Economic Journal 2000 66/3, 548-566.

¹³² ibid 561.

economists have been drawn into including social data (such as employer perceptions of different disabilities) into their analyses.

LABOUR FORCE PARTICIPATION AND DISABILITY BENEFITS

It would be fair to say that the dominant issue in the economic approach to disability and work concerns the impact of disability insurance programs on the labour participation of older males. This issue has been examined consistently and controversially over three decades. We will trace the main outlines of the debate, as it illustrates how economists deal with a major disability-related issue. The conclusions of the debate are also relevant to the purposes of this thesis.

The issue first arose when researchers noted a mysterious drop in the labour force participation of prime age males in the 1960s. Finegan¹³⁴ noted a drop of 0.8% between 1965 and 1970. In commenting on Finegan's observation, Gastwirth posited a link between this decline and disability benefits. He noted that changes in the disability laws that allowed people under 50 to receive benefits, along with changes in the definition of disability and greater awareness of the benefits, led to a large increase in the number of people receiving disability benefits. This, he argued, induced large numbers to leave the workforce. This effect, he believed, explained up to 78.3% of the decline in labour force participation (as against other interpretations such as more student enrolments or a higher labour force participation of married women).¹³⁵

Thus the lengthy debate began. A firm response to Gastwirth came from Swisher, who questioned the assertion that men drop out of the labour force

¹³³ De Leire T., "Changes in wage discrimination against people with disabilities: 1984-93", Journal of Human Resources 2001, 36/1 144-158.

¹³⁴ Finegan T., "Labor force growth and the return to full employment", Monthly Labor Review 1972 Feb, 29-39.

because they receive benefits.¹³⁶ With few exceptions, she argued, they leave the labour force long before they receive benefits; even then, half the applicants for disability benefits are rejected. She also challenged some of Gastwirth's methodology, and re-worked his data to produce a maximum disability effect on labour force participation of 40%.

The debate was given further impetus by an article by Scheffler and Iden¹³⁷ who used a basic work/leisure model to estimate the effects of disability on employment. In their model, disability reduces the expected wage rate and hence increases the attractiveness of leisure (substitution effect), while being partly offset by an income effect resulting in greater household work activity. The inclusion of measures of disability had the effect of substantially altering the relative importance of other labour supply factors. For example, the strong (negative) correlation between disability and education means that previous studies had overrated the importance of education. The article prompted a comment on methodology (Johnson) and a reply by the authors.¹³⁸

The next contribution to the debate was an article by Johnson and Murphy that explored strategies adopted by low income households to income losses from disability.¹³⁹ Three possible strategies were identified: other family members working, transfer payments and reduction in living costs. With regard to the first strategy, it was noted that unemployment induced by disability might actually require greater domestic involvement by the spouse. The study found that only 12% of wives in the sample group entered

¹³⁵ Gastwirth J., "On the decline of male labor force participation", Monthly Labor Review 1972 Oct, 44-46.

¹³⁶ Swisher I., "The disabled and the decline in men's labor force participation", Monthly Labor Review 1973, 96/11, Nov, 53.

¹³⁷ Scheffler R. and Iden G., "The Effect of Disability on Labor Supply", Industrial and Labor Relations Review, 1974, 28/1, October, 122-132.

¹³⁸ Industrial and Labor Relations Review, 1977, 30/3, April 380-382.

the labour force because their husbands were disabled. Many of the wives were already working anyway. Transfer payments replaced only 34% of the wages lost in 1965. Almost 30% of the severely disabled men received no transfers during 1965 (there were others who were not severely disabled who received transfers but lost no wages, pointing to inefficiencies in the system). The conclusion of the study was that disability pushed many of these families into poverty.

Meanwhile the Disability Insurance program continued to grow, with the numbers receiving benefits growing from 1.9 million in 1966 to 4.4 million in 1975. Lando and Krute¹⁴⁰ explained this growth in terms of changes in the program, greater awareness of the program, higher benefit levels and changes in the way the program was administered. Lando et al¹⁴¹ discovered a link between labour-market conditions and applications for disability insurance benefits. The unemployment rate, they argued, has an impact on the relative value of the disability benefit.

The most forceful statement of the link between male labour force participation and disability benefits came in article by Parsons in 1980.¹⁴² He noted that the non-participation rate of males 45-54 had risen from 4.2% to 8.4% between 1948 and 1976. His model results in an almost complete explanation of this in terms of increases in disability benefits: a 10% increase in benefits produces a 6% increase in non-participation.

The conclusion is that the decline in labor force participation is the result of increasingly attractive alternatives to work, even though

¹³⁹ Johnson W. and Murphy E., "The response of low income households to income losses from disability", in Industrial and Labor Relations Review 1975 29/1, Oct, 85-96.

¹⁴⁰ Lando M. and Krute A., "Disability Insurance: Program Issues and Research" in Social Security Bulletin 1976, 39/ October, 3-17.

¹⁴¹ Lando M., Coote M. and Kraus R., "Disability Benefit Applications and the Economy" in Social Security Bulletin 1979, 42/ October, 3-10.

¹⁴² Parsons D., "The decline in male labor force participation" Journal of Political Economy, 1980, 88/1 Feb, 117-134.

the principal welfare program (Social security disability) would appear to be rigidly conditioned by health restrictions.¹⁴³

The article was influential and may have helped inspire more policy restrictions to the program.

But a reaction followed, albeit several years later. Slade's empirical work produced a weak disincentive effect of the Disability Insurance program, except for older men close to retirement.¹⁴⁴ Then Haveman and Wolfe made major criticisms of Parsons' methodology, to which he responded.¹⁴⁵ Some of the methodological issues at stake in the debate are summarised well by Leonard.¹⁴⁶

The debate has continued into the 1990s. Haveman, de Jong and Wolfe¹⁴⁷ examined new data and concluded: "we find that the response of workers to increasingly generous disability benefits can account for no more than 20% of the decrease in older worker labor force participation observed in recent decades".¹⁴⁸

In 1992 the debate took a new and enlightened turn through a study by Bound and Waidman.¹⁴⁹ They found that between 1949 and 1987 up to half of the 4.9% drop in labour force participation of men aged 45-54 and a quarter to a third of the 19.9 point drop among men aged 55-64 represented a movement of men out of the labour force and into disability programs. But they consider that the expansion in programs was only one of the factors

¹⁴³ ibid 131.

¹⁴⁴ Slade F., "Older Men: Disability Insurance and the Incentive to Work" in Industrial Relations, 1984, 23/2, Spring, 260-269.

¹⁴⁵ Journal of Political Economy 1984 92/3, June, 532-549.

¹⁴⁶ Leonard S., "Labor Supply Incentives and Disincentives for Disabled Persons", in Berkowitz M. and Hill M. (eds), Disability and the Labor Market, 1986, ILR Press, New York.

¹⁴⁷ Haveman R., De Jong P. and Wolfe B., "Disability transfers and the work decision of older men", Quarterly Journal of Economics, 1991, 106, Aug, 939-49.

¹⁴⁸ ibid 948.

¹⁴⁹ Bound J. and Waidman T., "Disability transfers, self-reported health, and the labor force attachment of older men: Evidence from the historical record", Quarterly Journal of Economics, 1992 107/4, Nov 1393-1419.

involved in this movement (other explanations included a drop in the demand for older, less skilled workers in poor health). They note also that the fraction of men declaring themselves unable to work increased over the same period even among those over 65, who are not eligible for disability insurance. Finally and importantly, the participation rate for the able-bodied also decreased at the same time, and at a higher rate. They conclude that a substantial fraction of the decline in the labour force participation of older men in the 1970s can be explained by factors such as the earlier diagnosis of health problems, changing attitudes to work among older workers and a drop in demand for unskilled labour. The growth in availability of benefits played only a facilitating role.

Harkness' study in Canada in 1993 supported Bound and Waidman in concluding that the disincentive effect of disability insurance has been "substantially overestimated".¹⁵⁰

Hyatt's study, also based on the situation in Canada, compared the relative elasticity of post-injury employment to disability benefits and expected post-injury labour market earnings. While the generosity of disability pension benefits is negatively associated with post-injury employment (elasticity of -0.15), a much stronger positive link exists between expected post-injury earnings and post-injury employment (elasticity of about 0.94). He concludes: "policies aimed at increasing the labour market earnings an injured worker can expect following the injury can offset the disincentives of workers' compensation benefits".¹⁵¹ A later study by Bratberg in Norway also found "the incentive effects of wages are larger than the disincentive effects

¹⁵⁰ Harkness J., "Labour force participation by disabled males in Canada", Canadian Journal of Economics 1993, 26, Nov, 878-89.

¹⁵¹ Hyatt D., "Work disincentives of workers' compensation permanent partial disability benefits: Evidence for Canada" Canadian Journal of Economics 1996, 29/2 May, 289-308.

of benefits".¹⁵² Such contributions raise the important point that the relationship between expected income and employment can be influenced by changes on the wages side just as easily (and perhaps more forcefully) as from the disability benefits side. This had been overlooked in earlier studies.

As we would expect, the lumping together of different disability groups into total numbers for analysis risks masking important differences among these groups. This problem was addressed in a study published in 1996 that was sensitive to such distinctions.¹⁵³ Muller et al. found that the proportion of SSI recipients who worked depended substantially on their diagnostic category. Over 40% of the developmentally disabled and mentally retarded were working, compared with only 17% of those who were non-developmentally disabled. They also found that changes in the probability of working were linked to broader economic changes, as reflected in the unemployment rate.

While an economic understanding of the problem was evolving, so too the problem itself was changing. In a recent article Burkhauser observed that in the 1980s the overall growth in the disability transfer population of 5% masked a 44% increase in those aged 15-44.¹⁵⁴ In other words, the problem now was not older workers leaving the workforce, but younger ones. He attributes this growth to three specific policy changes: a loosening of the definition of mental impairment, greater difficulty in removing someone from the transfer system and a Supreme Court decision that forced the re-examination of 237,000 children who had been previously denied SSI benefits.

¹⁵² Bratberg E., "Disability retirement in a welfare state" Scandinavian Journal of Economics 1999 10/1, 97-114.

¹⁵³ Muller S. et al., "Labor-force participation and earnings of SSI disability recipients: A pooled cross-sectional time series approach to the behavior of individuals" Social Security Bulletin 1996, 59/1, Spring, 22-42.

¹⁵⁴ Burkhauser R., "Post-ADA: Are people with disabilities expected to work?", Annals of the American Academy of Political and Social Science 1997 549, Jan, 71-83.

Quinn also notes that the early retirement trend among older males in the USA came to an abrupt end in the mid 1980s. This means we must find explanations for the initial trend and for its sudden ending. For the latter he notes that mandatory retirement has been virtually eliminated, and the amount of work earnings allowed under social security rules has been increased. "The relative attractiveness of work and retirement has been altered in favour of work, and older Americans appear to be responding accordingly".¹⁵⁵ Interestingly he traces these same labour force participation trends in other countries, with the Australian experience close to the pattern observed in the USA.

Quinn draws on some of the earlier studies and gives a detailed summary of the various social security and disability provisions in the USA. He argues that changes in policy do affect individual decisions to work or seek early retirement, and that "workers do behave as though they understand and respond to both social security and pension incentives".¹⁵⁶ The changes are at the margin and modest in magnitude, but are sufficient to explain the observed labour force participation trends.

What does this long and detailed debate tell us? Our survey has not been exhaustive but even the debate we have covered resembles the proverbial peeling of an onion. However Quinn's conclusion is compelling and relevant to our considerations in this study: "incentives work... people behave as though they understand and respond to the incentives they face."¹⁵⁷ One might add that the observed changes were largely unintended consequences of uncoordinated government policies, the effects of which have only been

¹⁵⁵ Quinn J., "The labour market, retirement and disability" Australian Social Policy 1999/1, 133-162. Quote is from p. 143.

¹⁵⁶ ibid 149.

¹⁵⁷ ibid 156.

explained in hindsight. This surely has relevance to our understanding of other government programs relating to people with disabilities.

But from another perspective we can observe that the issue has drawn many economists into a closer and more detailed examination of the nature of disability and its impact on people's lives. It has not been possible to treat this issue solely as a public finance concern or an econometric exercise. Confrontation with the real world of people with disabilities by economists has been an unexpected positive outcome of this lengthy debate.

REASONABLE ACCOMMODATION

While the above debate has dominated economic concerns regarding disability, the issue of "reasonable accommodation" has also come under economic scrutiny. This concept originated in the *Rehabilitation Act of 1973* but has become more prominent in the USA since the ADA. Employers are required to meet the cost of accommodating workers with disabilities.

Collignon supports the argument that the government should meet the cost of these accommodations.¹⁵⁸ This would prevent the firms meeting these costs and employing disabled workers from being disadvantaged in the market because of these costs. However he argues that the true costs of these accommodations are often misunderstood. On the one hand, they are often overstated because other staff and customers may benefit from the accommodations (such as ramps). Also the disabled worker who is accommodated will be more productive as a result (according to over 50% of respondents in the study). Disabled workers are also regarded as having lower absenteeism and turnover. Accommodations and special

¹⁵⁸ Collignon F., "The role of reasonable accommodation in employing disabled persons in private industry" in Berkowitz and Hill (1986) *op.cit.*, Chapter 8, 196-241.

arrangements are often made for employees with higher skills anyway and the cost of accommodations is usually very small.¹⁵⁹

On the other hand, employers tend only to count their cash outlays for accommodations, not management time (which can be scarce, especially in small businesses). He concludes that some government assistance is justified, otherwise resentment might arise among employers facing these costs, or else they may channel disabled workers into (lower level) jobs that require no accommodation. But paying all costs would promote inefficiency, he argues, so he proposes a voucher system.

Johnson and Baldwin also raise concerns regarding the requirement under the ADA for employers to meet the cost of reasonable accommodations for disabled workers. They regard this as “unlikely to maximize the employment of persons with disabilities because it provides incentives to resist accommodations”.¹⁶⁰ They establish this point through a simple model that illustrates it would be best for employers to “save a certain cost by accepting a risk of future damages”.¹⁶¹ They note however that the cost of accommodations is likely to be small and that one of the strengths of the ADA is that it provides employers with sources of information on accommodations (something lacking in the Australian context).

Burkhauser notes “Programs meant to protect against work loss unavoidably create incentives not to work”.¹⁶² He explores various policies that may encourage those people with disabilities who are capable of working to return to the workforce. One such possibility is the “reasonable

¹⁵⁹ He reports (p. 232) on a study by the Urban Institute in 1974 where severely disabled individuals who were not working were asked what services they would need in order to return to work. The most common responses were lighter work, a reduced work schedule and a more flexible work schedule. Only then came issues such as transport, training, ramps and attendant help.

¹⁶⁰ Johnson and Baldwin (1993) *op cit.*, 783.

¹⁶¹ *ibid* 784.

¹⁶² Burkhauser (1997) *op cit.*, 75.

accommodation” provisions of the ADA. His earlier research showed that accommodation extended the stay on the job for the average worker from 2.6 years to 7.5 years.¹⁶³ He joins other economists in arguing that the government, not employers, should pay for these accommodations.

This issue is also addressed by Flacco and Zeager.¹⁶⁴ Their study concludes that mandatory workplace modifications could result in a substantial loss of jobs, especially among smaller firms. This is due to production uncertainty and the additional fixed costs imposed on the firm. They call for government financial incentives, but not to cover the full cost, as this would remove incentives for firms to choose minimum cost modifications.

However is it possible that employers can shift the cost of accommodations back onto the workers themselves, in the form of lower wages? This issue was addressed in a recent study by Gunderson and Hyatt.¹⁶⁵ They showed that employers are likely to absorb the costs of accommodations when re-employing their own injured workers, but are likely to pass on a substantial part of the cost of workplace modifications to workers who were injured elsewhere in the form of lower wages. The average wage reduction was calculated to be 6.7%. This research was based on 1,243 injured workers who were surveyed by the Ontario Workers’ Compensation Board in a period from 1989 to 1990. The authors argue that this finding is possibly due to institutional and legal pressures for the employer to take back their own injured workers and to absorb the cost of accommodations. It may also be true that employers have made an investment (in training and job integration) in a worker prior to their injury, and re-employing them

¹⁶³ Burkhauser R., et al., “The importance of employer accommodation on the job duration of workers with disabilities: A hazard model approach” *Labour Economics* 1995, 3/1, 1-22.

¹⁶⁴ Flacco P. and Zeager L., “Disabilities, mandatory worksite modifications and employment: Some potential policy dilemmas” *Public Finance Quarterly* 1992, 20/2, 256-270.

¹⁶⁵ Gunderson M. and Hyatt D., “Do injured workers pay for reasonable accommodation?” *Industrial and Labor Relations Review* 1996 50/1, 92-104.

afterwards enables them to gain further returns on their investment. Such incentives would not apply in the case of a worker who was injured while working for another firm. The average wage

They note: “our findings provide no basis for concluding that the cost shifting is sub-optimal or inappropriate”.¹⁶⁶ Without it, they argue, the employment of injured workers by other employers might be less likely.

COST OF ACCOMMODATIONS

Economists have also examined the issue of the cost of workplace accommodations. Mergenhagen¹⁶⁷ examines some of the evidence on the actual cost of accommodations. Sears reportedly made 71 accommodations between 1993 and 1995 at an average of cost of just \$45. 72% involved no cost, while 17% cost less than \$100. Even when indirect costs are included, management still saw accommodation as much cheaper than replacing a qualified employee. This article also mentions the favourable impact of increasingly inexpensive computer modifications for workers with a disability.

Other authors report studies that suggest higher costs for these accommodations. Gunderson and Hyatt for example note: “earlier survey evidence suggests an average cost of \$1350 for those accommodations that involve a cost”.¹⁶⁸ Information from the *Job Accommodation Network* in 1997 suggests an average cost of \$930 per accommodation since 1992.¹⁶⁹ However in both of these articles the authors explain that these direct costs are only part of the costs faced by employers:

¹⁶⁶ *ibid* 101.

¹⁶⁷ Mergenhagen P., “Enabling disabled workers” *American Demographics* 1997, 19/7, 36-42.

¹⁶⁸ Gunderson and Hyatt *op cit.*, 94.

¹⁶⁹ Quoted in Acemoglu D. and Angrist J., “Consequences of employment protection? The case of the Americans with Disabilities Act” *Journal of Political Economy* 2001, 109/5,

they do not include the indirect cost of the considerable administrative and managerial time that – in part because of the uncertainty of the requirements – may be expended when an injury occurs”.¹⁷⁰

This figure is likely to be an underestimate since it includes only voluntary accommodations, and there is no allowance for costs due to time spent dealing with ADA regulations and possible reduced efficiency due to a forced restructuring... An important component of ADA costs result from litigation.¹⁷¹

These indirect costs are likely to be a major burden for small businesses in particular.

The contribution of economists to this issue has been to distinguish between the nominal cost of workplace accommodations and their true economic cost to the employer. The direct costs are often trivialised in rehabilitation literature and government policy dogma, while the indirect costs are usually overlooked. Economic analysis provides tools with which to examine factors such as these and to evaluate their impact on employer decisions to employ people with disabilities.

EMPLOYMENT EFFECTS OF THE ADA

More recently data has emerged that has enabled an evaluation of the employment effects of the ADA. Two recent economic studies have undertaken such an evaluation – the news has not been positive. Some of the issues raised continue the economic focus on the cost of reasonable accommodation provisions in the ADA.

DeLeire’s study shows that between 1990 and 1995 the employment of disabled males fell 7.2 percentage points compared with the employment of

¹⁷⁰ Gunderson and Hyatt *op cit.*, 94.

¹⁷¹ Acemoglu and Angrist *op cit.*, 919.

non-disabled males.¹⁷² Relative wages however changed little during this period. He relates this change, not to the impact of disability insurance, but to “mandated job accommodation, such as modified work schedules, equipment, assistance, or physical changes to facilities” which “impose unique costs on employers”.¹⁷³ These costs, he argues, distinguish the ADA from other civil rights legislation. He concludes: “Although the ADA may have increased job accommodation for and reduced discrimination against people with disabilities, the costs of complying with the Act were large enough to reduce the demand for disabled workers and undo its intended effects.”¹⁷⁴

Acemoglu and Angrist¹⁷⁵ also found an employment effect attributable to the ADA, but in this case the impact was limited to males of all ages and females under 40. Their study covered the period from 1992 to 1997. Other explanations for the decline, such as the impact of disability transfers, were ruled out in the case of the under 40 groups. The decline was in both absolute and relative terms, and was more prominent in states with more ADA-related discrimination charges.

There was no decline in employment of disabled women aged 40-58. Some of the employment decline of males 40-58 could be explained, in their view, by increased transfers.

Their study found little support for the view that the ADA serves a job protection role by reducing separations. This suggests that the cause of the employment decline is the cost of accommodations rather than the fear of litigation costs for wrongful termination.

¹⁷² DeLeire T., “The wage and employment effects of the Americans with Disabilities Act” Journal of Human Resources 2000, Fall 35/4, 693-715.

¹⁷³ ibid 694.

¹⁷⁴ ibid 711.

¹⁷⁵ Acemoglou and Angrist op.cit.

OTHER STUDIES

Several interesting studies have focused on the economic impact of particular disabilities. This approach has been taken by Famulari, who examines the impact on labour market performance of a single disability — epilepsy.¹⁷⁶ Her methodology both highlights and overcomes several problems inherent in previous economic studies of disability. For instance, she demonstrates how important it is to distinguish, not just types of disabilities (something done infrequently in economic studies), but also the severity of disability. Another point she makes is that people with a disability who are working are not a random sample of people with a disability. Previous studies have focused only on those who are employed. Those who have not entered the workforce need to be included in the analysis.

She also makes the important point, noted earlier, that the indirect effect of disability on education must be taken into account in assessing the total impact of disability on earnings. Reduced educational opportunities can lead to restrictions in avenues of available employment and hence earnings.

Such insights produce a refreshing study, more attentive to the details of disability than many of the previous statistical data studies. She shows that having epilepsy has a large effect on both employment and earnings. For instance, even the mildest form of epilepsy resulted in a wage disadvantage of almost 30%. Epilepsy reduces the likelihood of a person being employed by between 10% and 30%.

In a similar vein is a study by Valdmanis on the plight of people with diabetes.¹⁷⁷ A more extensive study by Kahn, using cross-sectional data from

¹⁷⁶ Famulari M., "The Effects of a Disability on Labor Market Performance: The Case of Epilepsy", *Southern Economic Journal* 1992, 58/4, Apr, 1072-1087.

¹⁷⁷ Valdmanis V., "Productivity and economic burden associated with diabetes", *American Journal of Public Health* 2001 91/1, 129-130.

1976, 1989 and 1992, shows how medical improvements have led to a greater labour force participation of diabetic women.¹⁷⁸

We can also note studies of income security for people with disabilities¹⁷⁹ and of the impact of gender on wage differences.¹⁸⁰ Economic analysis has also been turned usefully towards the task of evaluating vocational rehabilitation programs.¹⁸¹

AUSTRALIAN STUDIES

Very little attention has been given to disability issues by economists in Australia. Sheehan and Stricker¹⁸² attempted to measure the labour market effects of various benefits, including what was then called the Invalid Pension. They found that the number of recipients of benefits rose strongly in the 1970s. However only in the first part of the period was the relative value of benefits rising. They concluded that over the period 1973-4 to 1980-81, about half of all the recipients were accounted for by the recession, a further quarter by demographic factors and the remainder by a range of other factors. Their conclusion is that expansive macro-economic policies are the only way to reduce the welfare bill: "Harsh policies to reduce the value of or access to benefits will not only cause serious hardship, but they will be

¹⁷⁸ Kahn M., "Health and labor market performance: The case of diabetes" Journal of Labor Economics 1998 16/4, 878-899.

¹⁷⁹ Johnson W. et al, "Income security for the disabled" Industrial Relations 1979 18/2, 173-183; and Frohlich P., "Income of the newly disabled: Survey of recently disabled adults" Social Security Bulletin 1975 Sep, 3-18.

¹⁸⁰ Baldwin M., et al., "Gender differences in wage losses from impairments" Journal of Human Resources 1993 29/3, 865-887.

¹⁸¹ See Conley R., "A benefit-cost analysis of the vocational rehabilitation program" Journal of Human Resources 1969, 4 Spring, 226-252; Bellante D., "A multivariate analysis of a vocational rehabilitation program" Journal of Human Resources 7/2, 226-298; Thornton C. and Maynard R., "The economics of transitional employment and supported employment", in Berkowitz and Hill (eds) op cit., 1986, 142-170; Berkowitz M. and Dean D., "Facilitating employment through vocational rehabilitation", in Thomason T. et al. (eds) 1998, op cit.; Butler R. et al., "Managing work disability: Why first return to work is not a measure of success" Industrial and Labor Relations Review 1995, 48/3 April, 452-469.

ineffective in reducing the relative size of welfare payments in the face of deepening recession.”¹⁸³

Mangan examined the impact of wage subsidies on the employment of people with a disability.¹⁸⁴ A survey of 400 firms found that 80% of large firms were aware of the subsidies that were introduced by the Government in 1981, but only 47% of smaller firms. Employers were asked how their job offers would change as subsidy levels were progressively increased. He found the elasticity coefficients to be small and elastic, although smaller firms were more sensitive to subsidies. But even doubling the subsidies would increase employment by about 30%. He concluded that the labour market for persons with disabilities was segmented from the total labour market, but also “internally segmented by gender”.¹⁸⁵

Some recent economic discussion has centred on the impact of the Disability Support Pension on the participation of people with disabilities in the workforce. The background to such discussion has been the significant recent increase in the number of people on the Disability Support Pension. Oliver examines the overall economic impact of a social security system that depends on “non-contributory, flat-rate, means-tested benefits”.¹⁸⁶ He argues that while Australia’s system is highly targeted, it may not be economically efficient because of the disincentives within the system for people to move into employment.

¹⁸² Sheehan P. and Stricker P., “Welfare benefits and the labour market”, in Blandy R. and Covick O. (eds), Understanding Labour Markets, 1984, Allen and Unwin, Sydney.

¹⁸³ ibid 221.

¹⁸⁴ Mangan J., “The effectiveness of wage subsidies for persons with disabilities”, Australian Bulletin of Labour 1990 Mar, 32-43.

¹⁸⁵ ibid 40.

¹⁸⁶ Oliver K., “Financial incentives for the unemployed: Have we got the balance right?” Social Security Journal 1997, Sept, 1-13, 1.

This debate has been fuelled by the release of the McClure Report in 2000.¹⁸⁷ The report called for a simplification and clarification of the welfare system, and for policies to encourage and facilitate the movement of people from welfare dependency into employment. The Federal Government's 2002 Budget chose to implement one small aspect of the McClure recommendations – a reduction in the minimum hours of work capability (from 30 hours to 15 hours) beyond which a person would lose eligibility for the Disability Support Pension. None of McClure's main recommendations, to increase the *incentives* for people to seek employment, have been implemented. On 27 June 2002 the Government responded to public pressure and decided to apply the changes only the new applicants.

The impact of the Disability Support Pension (DSP) is also the main focus of an article by Argyrous and Neale.¹⁸⁸ They argue that changes in the definition of disability and hence eligibility for the DSP have led older males to claim this benefit and move out of the workforce, rather than showing up as "unemployed" in the official statistics. Their figures show that the labour force participation rate for males 55-59 has fallen from 90.9% in 1968 to 72.2% in 1999. The fall for those aged 60-64 has been even more dramatic – from 79.5% to 46.3%.

Economic considerations have entered into several Government studies. The Ronalds Report in 1990¹⁸⁹ spawned a number of labour market studies, particularly addressing the vital question of how the wages of people with a

¹⁸⁷ McClure P., Participation Support for a More Equitable Society – Final Report of the Reference Group on Welfare Reform 2000 July, AGPS Canberra.

¹⁸⁸ Argyrous G. and Neale M., "Labor market disability: Implications for the Unemployment Rate" Economic and Labour Relations Review 2001, Dec, 12/2, 263-284.

¹⁸⁹ Ronalds C., National Employment Initiatives for People with Disabilities – A Discussion Paper 1990, AGPS, Canberra.

disability are to be determined.¹⁹⁰ Ronalds had given considerable attention to the issue of wage determination for people with a disability, and productivity-based wages in particular. But these and other studies have not benefited from academic scrutiny and debate.

The question of productivity has been important in Australia, where some way of determining a person's entitlement in relation to the full award wage has been a vital concern. The Supported Wage System, as we shall see later, also depends on such assessments. But these studies just mentioned indicate that determining the productivity of a person with a disability is not a simple matter.

This is an area where economic analysis would have much to contribute, to inform policy considerations. But it rates only a brief mention in the literature. The passing comment by Johnson is typical: "much of the variation in the effect of an impairment on work depends on the nature of a job or work environment".¹⁹¹

Matching an employee's skills and aptitudes to the available work is a management task. In the case of an employee with a disability, the task is decisive in determining their opportunity for productive work. For example, an employee with impaired dexterity may have low relative productivity in a manual task such as packaging, but a higher relative productivity level in a computer related task using voice recognition. This example also highlights the critical role of technology, not just in determining the productivity of the position but also in determining the capacity of an employee with a disability to undertake the work required. The nature of many disabilities is to limit a person's capability in undertaking certain tasks. It is the role of

¹⁹⁰ See Dunoon D. with Green J., Consultancy on the Development of a National Assessment Framework for a Supportive Wages System - Report to the Wages Subcommittee of the Disability Task Force, 1992, AGPS, Canberra.

management, aided by rehabilitation professionals, to find suitable jobs and relevant assistive technologies.

A good barometer of the low level of concern with disability issues by economists in Australia is given by the virtual omission of the topic in standard texts. Keith Whitfield, for example, has a chapter on “Disadvantaged Groups in the Workforce”.¹⁹² While labour market disadvantage is carefully traced for women, youth, older workers, migrants and aborigines, the analysis fails to extend to people with a disability. Norris has a chapter on discrimination, where it states: “Groups may be discriminated against on the basis of their race or birthplace, gender or age”. People with disabilities don’t rate a mention.¹⁹³ Thus the seeds for ignoring people with disabilities are safely sown for a new generation of Australian economists.

SUMMARY – ECONOMICS

Economics has contributed substantially to disability issues in several key areas. In particular it has brought greater clarity to issues such as *discrimination*. It has also been able to trace the impact on various policies and laws on the behaviour of employers and workers with disabilities. We note that studies, as they have evolved, have become more sensitive to the unique circumstances of people with disabilities.

The cost of *workplace accommodations* has also been carefully addressed within the economic literature. A fair question has been posed: if these are for social benefit, then why doesn’t society pay for them? Economists have been able to identify rational but socially undesirable employer behaviours that may

¹⁹¹ Johnson W., “The Rehabilitation Act and Discrimination Against Handicapped Workers: Does the Cure Fit the Disease?” in Berkowitz M. and Hill M. (eds), 1986 *op cit*.

¹⁹² Whitfield K. and Ross R., The Australian Labour Market, 1996, 2nd Edition, Harper Collins, Sydney.

arise (such as shunning employees who may require expensive accommodations) if this situation continues. The true costs of making and managing such accommodations are a burden for employers, especially in small businesses, although there may be ways for employers to pass on some of these extra costs to workers themselves, in the form of lower wages. On the other hand, economists tell us that there are strong economic incentives for rational employers to re-employ injured workers and to meet the cost of accommodating them.

Adaptive computer technology will most likely make its presence felt through workplace accommodations, so these insights from economists are directly relevant to the concerns of this study.

A related issue is the impact of legislation such as the ADA on the employment of people with a disability. While there is some evidence that the *Rehabilitation Act of 1973* had a beneficial impact on the employment of people with a disability, the converse appears to be the case with the ADA, based on the latest evidence.

Economists have yet to examine in any detail the factors (including technology) that affect the productivity of workers with disabilities. This is an area where economic analysis could contribute useful insights.

In Australia there has been a conspicuous lack of attention by economists to disability issues, apart from recent public finance concerns surrounding the Disability Support Pension.

¹⁹³ Norris K., *The Economics of Australian Labour Markets* 1996 4th Edition, Longman, Sydney.

Industrial Relations

People with disabilities are employed and receive wages. They attend workplaces, receive leave and superannuation entitlements, and share the same hopes and frustrations as other members of the workforce. Yet their presence, let alone their special circumstances, has hardly been acknowledged in the literature of industrial relations. A symposium on disability and employment published in the *New Zealand Journal of Industrial Relations* in 1991 began with an apology for this “virtually neglected topic”.¹⁹⁴

The earliest attempts to examine disability issues in the industrial relations literature begin around the time of the *International Year of Disabled Persons* in 1981. Craft et al. conducted a study, published in 1980, which aimed to find out who actually hires seriously handicapped workers and in what kind of employment.¹⁹⁵ The study was conducted at a large rehabilitation agency in the USA and included data on 498 job placements. They found that most placements went to small non-unionised employers in the service sector. Placements were concentrated in service, clerical and sales positions. “Our study suggests that seriously handicapped workers are often placed in dead-end, low-paying jobs with secondary employers.”¹⁹⁶

The problem with this study is that it relies on the placement strategies of the rehabilitation organisation involved. It may be that this organisation channels its placements towards employers it has used before. The industrial base of the area in which the placement agency operates may also have a big bearing on the type of placements made. Such factors would limit the extent to which these findings could be generalised.

¹⁹⁴ Brosnan P., “People with disabilities in the labour market: editor’s introduction”, *New Zealand Journal of Industrial Relations*, 1991, 16, 247. In spite of the apology, the Symposium includes very little industrial relations content.

¹⁹⁵ Craft J., Benecki T. and Shkop Y., “Who Hires the Seriously Handicapped?”, *Industrial Relations*, 1980, 19/1, Winter, 94-99.

¹⁹⁶ *ibid* 98.

1980 was also the year of an important ILO Symposium on work for people with disabilities.¹⁹⁷ This was soon followed by more ILO involvement on this issue, culminating in the ILO *Vocational Rehabilitation and Employment (Disabled Persons) Convention, 1983 (No. 159)*. This requires that appropriate vocational rehabilitation measures be made available to all categories of disabled persons.¹⁹⁸

Norman Acton, Secretary General of Rehabilitation International, contributed an article to the *International Labour Review* to acknowledge the IYDP.¹⁹⁹ He poses the question: "Why is employment an essential goal for persons with disabilities?" He lists four factors: the need for income, the need to contribute to society through productive and gainful employment, the importance of vocational rehabilitation and the importance of work in giving "a regular structure and discipline to living".²⁰⁰ He believes the future possibility for increasing the employment of people with a disability will depend heavily on wider economic and social changes. He sees future difficulties, due to increasing unemployment, an ageing population (and larger numbers of people with a disability), increasing strain on social services and fewer opportunities for family work. Technology will have ambiguous effects, he believes, by opening jobs that don't require dexterity and mobility (thus benefiting people with physical disabilities), but also reducing unskilled jobs that would be available to those with intellectual and related disabilities. He lists some examples of best practice solutions at the time from around the world, including several from Australia. These predictions remain robust more than 20 years on.

¹⁹⁷ ILO, *ILO European Symposium on Work for the Disabled: Vocational Rehabilitation and Employment Creation* 1980, Stockholm.

¹⁹⁸ See Konig A. and Schalock R., "Supported employment: Equal opportunities for severely disabled men and women", *International Labour Review* 1991, 30/1, 21-37.

¹⁹⁹ Acton N., "Employment of disabled persons: where are we going?" in *International Labour Review*, 1981, 120/1, Jan-Feb, 1-14.

²⁰⁰ *ibid* 3-4.

Rami Rabby, himself a blind management consultant to governments and large companies, especially in the USA, explores issues relating to the employment of people with a disability in large corporations.²⁰¹ He feels larger corporations are better placed to provide the resources, accommodations and specialised jobs required by people with disabilities. He notes the looming importance of technology:

An intellectually competent quadriplegic, for example, may be physically very limited, but even if he is able to move just one finger he will be able to use a computer terminal.²⁰²

He makes suggestions for the development of corporate policies on disability employment, while noting that “management backing is much more likely to be forthcoming if the managing director or some other top decision-maker in the corporation happens to have some personal stake in the success of a programme for the employment of the disabled – for example, if he has himself suffered and overcome a disability.”²⁰³

Also around this time a study of employment subsidy programs in the USA found that large firms were more aware of the available subsidies and more likely to participate in the programs, although overall take-up of available subsidies was low. Much depended on the dedication of local program administrators.²⁰⁴

The flicker of interest in disability issues in the industrial relations literature inspired by the IYDP was not sustained. It was not until the *Americans with Disabilities Act of 1990* that the disability issue resurfaced. The DDA prompted some questioning as to the impact of these new civil rights on established collective rights. Some unions obviously felt their hard-won

²⁰¹ Rabby R., “Employment of the disabled in large corporations”, *International Labour Review* 1983, 122/1, 23-36.

²⁰² *ibid* 24.

²⁰³ *ibid* 26.

rights will be diluted by the special support given to people with a disability in the legislation.²⁰⁵ On this issue Pritchard identifies several areas where the ADA conflicts with the *National Labor Relations Act*:²⁰⁶

First, while the ADA imposes a duty to hold informal discussions directly with employees to evaluate proposed accommodations, the NLRA prohibits such “direct dealing” without prior union authorization. Second, while the ADA requires the employer to develop a reasonable accommodation, the NLRA forbids employers from violating the terms of a collective bargaining agreement, and certain provisions of such an agreement may prevent employers from undertaking a preferred accommodation. Finally, while the ADA imposes confidentiality requirements on all medical records relating to disability, the NLRA requires employers to discuss all relevant information with the employee representative.²⁰⁷

In his view, based on cases under the *Rehabilitation Act of 1973*, some provisions of collective bargaining agreements (in the area of seniority) “trump an employer’s obligation to provide a reasonable accommodation”. However there is uncertainty as to what will happen with the ADA.

²⁰⁴ Bishop J. and Montgomery M., “Evidence on firm participation in employment subsidy programs”, *Industrial Relations* 1986, 25/1, 56-64.

²⁰⁵ See Rottenberg E., “The Americans with Disabilities Act: Erosion of collective rights?”, *Berkeley Journal of Employment & Labor Law*, 1993, 14/1, 179-189; Lissy W., “Labor law and disabilities law incompatible?”, *Supervision* 1993, 54/3, Mar, 20-21; “Union contracts and the Americans with Disabilities Act”, *Supervision* 1992, 53/6, Jun, 19-20; Doty D., “The impact of federal labor policy on the Americans With Disabilities Act of 1990: Collective bargaining agreements in a new era of civil rights”, *Brigham Young University Law Review* 1992/4, 1055-1089; Hodges A., “The Americans with Disabilities Act in the Unionized Workplace”, *University of Miami Law Review* 1994, 48, 567-625; Ervin J., “Reasonable accommodation and the collective bargaining agreement under the Americans with Disabilities Act” *Detroit College of Law Review* 1991, 3, 925-972; Smith J., “Accommodating the Americans with Disabilities Act to collective bargaining obligations under the NLRA”, *Employee Relations Law Journal* 1992, 18, 273-285.

²⁰⁶ Pritchard R., “Avoiding the inevitable: Resolving the conflicts between the ADA and the NLRA” *The Labor Lawyer* 1995, 11, 375-414.

²⁰⁷ *ibid* 386.

Several other authors have commented on the role of unions in regard to disabled workers. In the UK context Oliver feels that the union movement has been “disablist in its resistance to changing work-practices to facilitate the employment of disabled people and to rewriting job specifications...”²⁰⁸ in spite of its being “broadly supportive” of the quota system established under the *Disabled Person’s (Employment) Act, 1944*.

A more positive role for unions, in preventing work-related injuries and disabilities, is proposed by Schurman et al. Strategies may include securing higher risk premiums, enforcing health and safety provisions and supporting workers in exercising their rights against unfair dismissal.²⁰⁹

One important area that has not been taken up by the industrial relations community is that of *sheltered workshops*. These were common responses to the employment needs of people with a disability prior to the movement to open employment in the 1980s. Only recently have they come into focus in the industrial relations literature, in a study by Visier.²¹⁰ He reports on the findings of an international survey of sheltered workshops, after posing the fundamental dilemmas of this type of employment: “Does it provide workers with an occupation over the long term or can it constitute transitional employment on the way to entry or re-entry to unsheltered employment?” and “Should the production of goods and services take priority over therapeutic or medical and social concerns?” The survey shows great diversity in employment arrangements in 20 countries. For Australia the survey shows the following:

- Over 85% of workers have a mental or psychological impairment.

²⁰⁸ Oliver, *op. cit.*, 129.

²⁰⁹ Schurman S. et al, “The role of unions and collective bargaining in preventing work-related disability” in Thomason T. et al. (eds), *New Approaches to Disability in the Workplace*, 1998, Ithica, Cornell University, 121-154.

²¹⁰ Visier L., “Sheltered employment for persons with disabilities” *International Labour Review* 1998, 137/3, 347-365.

- There is no minimum wage applicable to sheltered workshops.
- Payment of wages above a certain ceiling results in a reduction in the pension.
- Trade union membership in some cases exceeds 30%.

Interestingly the Ronalds Report concluded “a contract of employment between a worker in a sheltered workshop and the management of that workshop appears to exist in most cases”.²¹¹ Yet the employment of these workers has not attracted the attention of industrial relations analysts.

A recent but pioneering attempt to utilise an industrial relations theoretical framework to analyse work and disability issues was published in 1998.²¹² Thomason et al. use the industrial relations model developed by John Dunlop to examine the “workers’ disability system”. The “actors” include workers and their representatives, employers and their representatives, insurers, the medical community and the government. The “goals” of the system are “criteria by which system performance may be evaluated”. They are as follows:

1. The resources devoted to the program should be adequate.
2. The delivery system should be efficient.
3. The program should be affordable.
4. The benefits provided by the program should be equitable.
5. System design efficiency.

These criteria, they argue, can be applied to an individual program or to the system as a whole. The “ideology” of the system is that while “ultimately

²¹¹ Ronalds op cit.149.

rooted in a biological or psychological abnormality, disability is fundamentally a social construction".²¹³ Outputs of the system are described as various government policy options, accommodations made at the workplace and compensation payments.

Dunlop's three aspects of the "environment" are included (Technology, Market and Power). However Technology is divided into production technology and medical technology. The discussion on Power notes the rise of the Disability Movement and the decline in trade union power.

While the usefulness of Dunlop's model as an explanatory tool can be questioned, it can serve a role as a way of organising the various factors in a context such as this. It is not without benefit as a descriptive device as used by the authors. The attempt is certainly novel. Its weaknesses are that it fails to incorporate basic economic variables such as employment and wages, and finds no real place for the rehabilitation process. It is weighted towards insurance matters.

Two Australian studies examining disability and employment issues from an industrial relations perspective can be noted. The fact that they are 13 years apart is unfortunately a fair reflection of the level of interest in the issue within this discipline in Australia. The first began as an undergraduate honours thesis.²¹⁴ In spite of its humble origins, Tolliday's paper usefully canvasses a wide range of issues relating to the employment of people with a disability. One of the reasons it does so is that it takes a wide view of discrimination, linking it quite closely to the notion of handicap. People with a disability become handicapped through a society that directly and indirectly disadvantages them, more than through their disabilities.

²¹² Thomason T. et al, "Disability and the Workplace" in Thomason et al (1998) *op. cit.*, Chapter 1, 1-37.

²¹³ *ibid* 20.

She regards sheltered employment as discriminatory: “discrimination is implicit in the segregated occupational setting, with its associated disincentives for progression to open employment.”²¹⁵ Discrimination occurs in the hiring process, promotion, working conditions and dismissal. Attitudes of both employers and unions are seen as being at the core of prejudice and discrimination.

She correctly sees the disadvantage that many people with a disability face in the education system as a form of institutional discrimination. In Australia this occurred through the segregation of disabled children. She concludes: “The legacy of past discrimination, in segregated schooling, segregated workplaces, inaccessible buildings and fragmented provision of services is deeply entrenched in the present-day work environment.”²¹⁶

She notes that Slow Worker permits are given no publicity. Only 47 permits were issued in the year to 30 June 1981, in spite of the fact that it was the International Year of Disabled Persons. She advocates a range of Government interventions, including employment quotas, training programs and more research. Prophetically she mentions the possibility of home-based work for people with a disability using computers.

It is a useful paper, covering fresh ground, perhaps lacking mainly in its failure to grapple with some of the economic literature then available on discrimination.

The second paper, by Brosnan, has a firm economic base in addressing labour market issues concerning people with a disability.²¹⁷ He argues that the neoclassical model of the labour market explains the low pay of people

²¹⁴ Tolliday S., Physical Handicap and Employment Discrimination, 1982, Industrial Relations Research Centre, Research Paper No. 4, UNSW.

²¹⁵ ibid 32.

²¹⁶ ibid 44.

with a disability in terms of their low productivity. Their disability is the cause of the problem, not the market. (In this it is aligned with medical approaches to disability.) Brosnan's main critique of this approach concerns productivity. He argues that in real life there is little scope for variations in output. The issue for an employer hiring a worker is not how productive they are but whether they can do the job. Their productivity will depend on technology and the organisation of production.

This is a vital issue in the consideration of disability and employment. As we have already seen, flexibility in job design, work organisation and the application of new technology are the factors, more than the disability itself, which determine productivity.

This is a rigid view of job design and productivity. As we have already seen, flexibility in job design, work organisation and the application of new technology are the factors, more than the disability itself, which determine productivity. Technology and the organisation of production cannot be "givens" in the workplace. Their adaptation to the needs of workers with disabilities is the purpose and rationale of workplace accommodations.

Brosnan compares the neoclassical model with the segmentation model, where groups such as people with a disability are condemned to jobs with low pay and poor prospects. Reducing wage rates, the main prospect for increasing employment in the neoclassical model, would not work in the segmentation model. It would not change the pattern of segmentation (although it would surely affect the relative employability of various disadvantaged groups). Segmentation labels people as "disabled" even though these people may have abilities that could qualify them for better segments of the labour market. Conventional wisdom regarding the

²¹⁷ Brosnan P., "Social and Medical Segmentation: People with Disabilities and the Labour Market", 1995, Paper presented at AIRAANZ Conference, Melbourne, February 1995.

appropriate employment of people with a disability is, he argues, a reflection of past prejudice. “People with disabilities are already disadvantaged in gaining access to workplaces which display ableist cultures.”²¹⁸

Brosnan briefly discusses the problems faced by people with a disability in organising themselves collectively or in gaining the support of trade unions. He notes that employers, “gatekeepers to the good jobs”, vary in their attitude to people with a disability depending on the nature of the disability.

With regard to state policies, he notes that the social security system is savage in the way it penalises those on pensions who gain employment. A worker on 50% of the full award rate, for example, has an effective marginal tax rate of 85%. People with a disability are already disadvantaged through the education system before they even reach the labour market. Once there, they face disadvantage in terms of wages and levels of unemployment.

He sees some hope in structural change in the labour market, with more tertiary sector jobs, more part-time work, and new forms of employment such as teleworking. Apart from this, he believes full employment is the best guarantee of new job opportunities for people with a disability.

Brosnan’s paper is refreshing in that it dares to enter this area at all. There are however omissions, such as a failure to grapple with the diversity of disabilities, a minimal treatment of the issue of productivity, no discussion of workplace accommodations, and no consideration of recent studies on labour market discrimination. He also seems to miss the significance of the Supported Wages System.²¹⁹

The neglect of disability concerns in Australian industrial relations is clearly documented in the omission of the issue in standard Australian industrial

²¹⁸ ibid 8.

relations texts. For example, the chapter on Equity Policies in Gardner and Palmer²²⁰ mentions disabilities in a subdued and anecdotal fashion. It is completely overpowered by the attention given to sexual discrimination. The plight of people with a disability does not enter into the analysis and is only mentioned, one suspects, out of courtesy.

Even worse is the non-treatment given to workers with disabilities in Fox, Howard and Pittard.²²¹ In their chapter on Workplace Safety and Equity we get the amazing statement: "Discrimination may operate in the workplace on the basis of different treatment of persons of different sexes, on the basis of age, pregnancy, marital status, a person's religion or beliefs or sexual preference."²²² There is some improvement a little later, when it is stated that "The Commonwealth and all states of Australia except Tasmania, have enacted legislation which prohibits discrimination based on grounds such as race, sex, and so on."²²³ (Emphasis added). A tantalizingly brief mention is made of disability in the context of the *Disability Discrimination Act*, but it fails to flower into a full sentence. One looks in vain at more recent industrial relations texts for any mention of workers with disabilities and the issues that concern them.²²⁴

Even issues that involve the main industrial relations players fail to inspire attention. The Supported Wages System, for example, nurtured by the Australian Council of Trade Unions (ACTU) since 1991, developed in

²¹⁹ Which did warrant a full paragraph in the *Journal of Industrial Relations*: Weeks P., "Major Tribunal Decisions in 1994", *Journal of Industrial Relations*, 1995, 37/1, Mar, 109.

²²⁰ Gardner M. and Palmer G., *Employment Relations: Industrial Relations and Human Resource Management In Australia*, 1997, 2nd edition, Macmillan Melbourne.

²²¹ Fox C., Howard W. and Pittard M., *Industrial Relations in Australia*, 1995, Longman Cheshire, Melbourne.

²²² *ibid* 456.

²²³ *ibid* 461.

²²⁴ See Keenoy T. and Kelly D., *The Employment Relationship in Australia* 1998 2nd edition, Harcourt Brace, Sydney; and Deery S. et al., *Industrial Relations – A Contemporary Analysis* 2001, 2nd edition, McGraw Hill, Sydney.

conjunction with the tripartite National Labour Consultative Council, and finally coming to life in 1994, fails to get a mention in the literature.

Why has the employment of people with a disability failed to make it as an industrial relations issue? This cannot be put down to chronic ableism, although it is likely such assumptions are as much a part of industrial relations as any other discipline. Nor can the answer lie in the fact that people with a disability do not participate in industrial relationships: some of them are in mainstream employment, and quite a few (over 26,000 according to Baume²²⁵) are in sheltered or supported employment in the Australian context. They face the same type of issues that other workers face, in terms of wages, hours, conditions, management policies and technology. But their concerns have not become the subject of reflection and analysis with the *discipline* of industrial relations.

There are several possible reasons for this. One is the heavy focus on institutions, particularly unions, in the industrial relations literature. This would explain why sheltered workshop employment, for example, has failed to make it as an industrial relations concern (although even here, we can note that the partial unionisation of sheltered workshops in Australia has taken place in the 1990s).

Another reason is the way in which matters become “industrial issues” between the parties in industrial relationships. Some industrial relations matters arise from the workplace itself and become issues between the parties. But often they are imposed on the relationship by factors external to the workplace — legislative changes (which in turn often reflect social changes), economic factors and political factors. If people with a disability are not prominent at the workplace, then issues relating to their employment

²²⁵ Baume P. and Kay K., Working Solution - Report of the Strategic Review of the Commonwealth Disability Services Program, 1995, AGPS Canberra, 86.

have not had the opportunity to become industrial issues. This will only happen, one suspects, through external factors imposing themselves on the workplace.

Third, as we have noted previously, the impact of the *Disability Discrimination Act* has been moderate. It has yet to have an impact on mainstream business. Disability employment has been taken up by some large corporations; however it is treated as a welfare issue rather than an industrial relations issue.

Finally we can note a tendency in Australia to leave all disability concerns to the government. People with a disability are already heavily tied to government in other respects, such as health care, accommodation, transport and welfare – why should employment be any different?

The indifference of industrial relations to the issue of disability is likely to be challenged in the future. Diversity in work patterns (including new developments such as teleworking²²⁶) will be likely to force industrial relations analysts to widen their perspective.

In the meantime the absence of an industrial relations perspective on people with a disability at work has allowed the emergence of a new area of study dedicated to that purpose – vocational rehabilitation.

Conclusions

This chapter examines the ways in which the issue of disability and employment is treated in several established disciplines.

²²⁶ A three year US Government survey found that 64% of Fortune 1000 companies have implemented teleworking, with 60% of the remainder planning to introduce it in the next three years. (Reported in PC Week 15/11/95).

Social analysis locates the issue within broader social forces that shape the way in which disability is defined and perceived. The rise of the Disability Movement is highlighted, as well as the triumph of the social model of disability over the medical model. The ways in which employers discriminate against people with disabilities is another prominent theme.

Legislative changes have been both rallying points for change and symbols of achievements. Yet doubts have been expressed concerning whether or not anti-discrimination legislation will achieve its goals. The ADA may have been hijacked by those with bad backs and those already employed using it as a tool to resist dismissal. Exciting legislation on assistive technology in the USA has failed to raise a comment in the legal literature and has been ignored by legislators in Australia.

Economics provides tools of analysis to be applied to issues such as labour force participation of people with disabilities, discrimination and workplace accommodations. Recent analyses suggest that the ADA has resulted in a deterioration in the relative employment outcomes for people with disabilities. But the major issue, concerning the movement of people in and out of the workforce in response to changes in welfare payments, stems more from public finance concerns than from concerns for the welfare of people with disabilities. In Australia we observe that incursions by economists into the world of disability have been infrequent.

The working situations of people with disabilities have never really found a home in industrial relations, and even the situation in sheltered workshops has aroused minimal scrutiny.

Several features regarding the treatment of disability and employment in these disciplines are prominent. We can note the limited dialogue between these disciplines and their failure to be informed by each other's insights. The tardiness of the established disciplines in responding to the disability

issue has resulted in the emergence of new disciplines such as Disability Studies and (as we see in the next chapter) Vocational Rehabilitation.

The issue of technology in relation to the employment of people with disabilities is rarely mentioned in these disciplines. It comes closest to scrutiny in discussions of “reasonable accommodation” in the legal and economic literature. Here it resonates with the new perception of disability as a consequence of the failure of our social and physical structures to include people with a disability. The concept of reasonable accommodation means that workplaces, more than disabled workers, must adapt. Computer technology is one aspect of this requirement.

However we note that the key concept of reasonable accommodation has a phantom presence in the Australian context. This in turn diminishes the scope for effective technological options to be prominent workplace concerns.

CHAPTER THREE

LITERATURE REVIEW – NEW DISCIPLINES AND THE DEVELOPMENT OF A NEW FRAMEWORK

The issues of disability and employment, and disability and technology, have not been major concerns within the established disciplines. While there have been sporadic useful insights, there has also been silence and neglect. This has left the way open for the emergence of new disciplines, focusing on employment (vocational rehabilitation) and technology (assistive technology).

Vocational Rehabilitation

INTRODUCTION

The shift in focus from sheltered employment to open employment, and more generally from segregation to integration, has coincided with the rise to prominence of *vocational rehabilitation*. There are commonly regarded to be three levels in the rehabilitation process: primary (acute rehabilitation), secondary (restoration of function) and tertiary (integration back into the community and assistance with social and vocational skills a person requires). *Vocational rehabilitation* is a form of tertiary rehabilitation that focuses on getting people with disabilities and injuries into the workforce.¹

Vocational rehabilitation is more an area of practice than a discipline. Its journal articles generally give minimal attention to theoretical concerns and focus more on issues of policy and practice. Often they include surveys, case

¹ Strictly speaking the rehabilitation process for a person with a congenital disability is more correctly referred to as *habilitation*. But such a distinction is not maintained in the literature.

studies, reports on new techniques and “success stories”. There are more than a few articles that attempt to justify the costs of vocational rehabilitation. There is very little debate and little evidence of much dialogue with other disciplines. It has a self-consciousness typical of younger disciplines. Our review of relevant literature in this field must therefore take a different course from that of the previous disciplines. This analysis will look at major themes and trends in the literature of vocational rehabilitation, with special attention to issues relevant to this study.

The beginnings of vocational rehabilitation can be traced back to the end of World War I² and it has been strongly supported by the ILO.³ Subsequent wars in the 20th century provided strong encouragement to the development of vocational rehabilitation services in virtually all countries. In Australia we can note the formation of what later became the Commonwealth Rehabilitation Service in 1941, as a response to the needs of invalid service personnel.

As we have discussed earlier, disabled veterans were at the forefront of the Disability Movement and the subsequent legislative changes flowing since the 1970s. The nature of their disabilities (often physical and sensory), the fact that they typically had pre-injury work skills, and the duty owed to them by the community, were all factors that served to lift vocational rehabilitation and employment services to greater prominence.

Legislative changes have also boosted vocational rehabilitation services. Prominent among these were the *Rehabilitation Act Amendments of 1986*, which led to an expansion of supported employment and “job coaches”.

² Levitan S. and Taggart R., “Employment problems of disabled persons”, Monthly Labor Review, 1977, Mar, 10.

³ Stace S., “Vocational rehabilitation for women with disabilities”, International Labour Review, 1987, 126/3, May-June, 308.

Supported employment was further strengthened by the 1997 regulations to the 1992 *Rehabilitation Act* reauthorisation.

Supported employment can be seen as transitional form of employment, moving people with disabilities out from sheltered workshops into strongly supported work arrangements in industry. Typically the workers in supported employment arrangements have intellectual or cognitive disabilities.⁴ Much of the literature in vocational rehabilitation concentrates on supported employment for people with cognitive impairments; this literature will not be discussed in this section.

It would be fair to say that initial rehabilitation efforts were devoted to preparing the individual for work. Rehabilitation itself has a medical flavour, and vocational rehabilitation inherited this approach initially. Emphasis was placed on training, skill development, support on the job and the need for special equipment. Articles cover the techniques and strategies required for the successful placement of people with various disabilities.

The traditional approach is described well by Gilbride and Stensrud.⁵ It is characterised as having a supply-side focus, a sales approach, client-centred services, client case loads, public funding and services that terminate shortly after placement. They see a need for “demand-side job development”, which they describe as “providing services directly to employers to help them meet their labor hiring needs by hiring people with disabilities”.⁶ It aims to increase demand by providing consultancy services to employers to help them fill certain jobs. They offer expertise, rather than selling clients. The

⁴ Although some would argue there is a need for people with severe physical disabilities to be given greater access to supported employment. See Mast M. and West M., “Are individuals with severe physical impairments underserved in supported employment?” *Journal of Vocational Rehabilitation* 2001, 16, 3-7.

⁵ Gilbride D. and Stensrud R., “Demand-Side Job Development: A Model for the 1990s”, *Journal of Rehabilitation*, 1992, Oct-Dec, 34-39.

⁶ *ibid* 36.

focus is on employer needs (including the need to make profit) and on the jobs themselves.

However the transition from supply-side focus to demand-side focus will be a gradual one. The cultural gap between salaried therapists in a government-funded rehabilitation organisation and people in business, seeking to survive in a tough commercial environment, is considerable. Nevertheless there has been a shift in emphasis, one that sees vocational rehabilitation moving away from its medical heritage towards the area of the workplace itself – employers, work systems, technology and job design. This changing emphasis is clearly evident in the vocational rehabilitation literature. It also provides detailed information about what is happening to workers with disabilities at the level of the workplace. Some of the main themes are discussed below.

EMPLOYER ATTITUDES

Early studies of employer attitudes to employing people with disabilities could be described as inquisitive. One American study in 1979 came from employers themselves.⁷ Although the survey of Fortune 500 companies obtained responses from only 43 companies, some interesting findings emerged. For example, while 95% of respondents expressed a willingness to consider hiring a person with a physical disability, only 20% would consider hiring a “severely mentally retarded” person.⁸ The factors most likely to influence an employer’s decision to “hire a handicapped person” were

⁷ Mithaug D., “Negative employer attitudes towards hiring the handicapped: Fact or fiction?” Journal of Contemporary Business 1979 8/4, 19-26.

⁸ ibid 22.

“ability to perform job” and “productivity”, well ahead of “compliance with affirmative action” and “concerns about absenteeism”.⁹

In Australia Pascoe and Lee (1980)¹⁰ conducted a study of Perth employers to ascertain their attitudes to the employment of those with physical disabilities in white collar employment. They found that 57% of respondents did not employ any people with disabilities at all. The main reason given was the lack of facilities to cater for them. They concluded that there was “a tendency to avoid employing handicapped people” and that “the employment prospects for handicapped people are grim”.¹¹

The gulf between rehabilitation professionals and employers is well evidenced by another early Australian study of employer attitudes. The authors concluded it was:

disappointing to find so few businesses employing handicapped persons, and at least equally disappointing that more than half remain unwilling to even consider employing them... While those involved in providing services to disabled persons need no convincing that there are, in fact, positive benefits to be gained by employing disabled persons, it is apparent that this message has not been successfully transmitted to employers.¹²

We can observe a movement from *curiosity* to *education* in some subsequent articles. Matkin argues: “rehabilitation personnel must either possess or acquire the knowledge and language skills associated with business and economics in order to communicate effectively with employers”.¹³ He describes four main concerns that employers have about employing people

⁹ ibid 22-23.

¹⁰ Pascoe S. and Lee M., “Employer attitudes towards hiring physically handicapped people”, National Rehabilitation Digest 1980 4/3, 29-36.

¹¹ ibid 35.

¹² Cooper G. and Jongeling S., “Factors affecting employment opportunities for, and employer attitudes towards persons with disability – results of a survey” Australian Rehabilitation Review 1983 7/1, 29.

¹³ Matkin R., “Educating employers to hire disabled workers”, Journal of Rehabilitation 1983, July-Sep, 61.

with a disability: increased costs, increased insurance costs, substandard attendance and productivity, and less flexibility in work arrangements. He quotes research that purportedly meets these objections.¹⁴

Employer concerns and ways to address them were the focus of Rochlin et al.¹⁵ Rehabilitation personnel must be prepared to answer employer uncertainties, namely:

1. Will the disabled person do what he or she is supposed to do?
2. Will he or she persist in the position?
3. Will he or she work as well as or better than a nondisabled person?
4. Will he or she be safe?
5. Will he or she pose a physical threat to others in the work environment?
6. Is this the best way for me to use my personnel budget?
7. Will hiring this person be worth the time, effort or money expended?
8. Will the productivity of this person justify the monetary outlay?

“Employers should be approached in a business-like way and disabled people should market themselves on the basis of their skills and capability to meet the needs of employers”.¹⁶

The implication of these types of studies is that role of the rehabilitation professional is simply to produce evidence to refute employer ignorance. It was an evangelistic approach, often quoting unverified statistics to “prove” that workers with disabilities were at least equal to, and possibly more productive than, workers without disabilities. The logic of such a proposition would be elusive for most employers.

¹⁴ ibid.

¹⁵ Rochlin J. et al., “Competitive employment of disabled people: The need for partnership” in Journal of Rehabilitation 1985, Apr-Jun., 19-23.

¹⁶ ibid 22.

We can note a subsequent shift in the literature towards a more genuine dialogue with employers, with a desire to understand employers' needs and constraints.

Literature on employer concerns about employing people with a disability were summarised by Greenwood and Johnson (1987). Some of the important issues were:

- ♦ Competitive job skills and job readiness are essential.
- ♦ Employers feel resource agencies frequently did not understand business operations.
- ♦ Personal appearance of applicants is important.
- ♦ Employers are concerned about compensation costs.
- ♦ Employers tend to identify low level, unskilled jobs as being most suitable for people with disabilities.
- ♦ Smaller firms especially expressed concern about flexibility, safety, insurance and productivity.

There is a call for rehabilitation practitioners to become more knowledgeable about employer needs. "Employers continue to emphasize that productivity by their employees is the bottom line".¹⁷

In Australia two studies of employer attitudes to employing a person with a disability were commissioned by the Spastic Centre of New South Wales (NSW). The first was a survey of 188 businesses in Sydney's western region, undertaken by BIS Shrapnel in 1988. They found 32% of businesses claimed to be employing a person with a physical disability. Respondents were asked to give reasons why a person with cerebral palsy could not be employed in their organisations. The results were:

¹⁷ Greenwood R. and Johnson V., "Employer perspectives on workers with disabilities" Journal of Rehabilitation 1987, Jul-Sep, 37-45.

- ♦ No suitable jobs (30%)
- ♦ Safety factors (25%)
- ♦ Work Too Heavy (20%)
- ♦ Lack of training (12%)
- ♦ Alterations needed (11%)
- ♦ Too slow (9.5%)
- ♦ Help needed (8%)
- ♦ Effect of customers (8%)
- ♦ Lack of mobility (6.3%)

They also found that over 40% of companies were not aware of available forms of Government financial assistance for employers. When asked if the Job Start subsidy (\$150 per week for 26 weeks) would influence their decision to employ a person with cerebral palsy, over 50% said it would not be a significant factor.

The second study, a phone poll of 621 people in NSW, was conducted by AGB McNair on behalf of the Spastic Centre in May 1991. It found that those in Government employment had a more favourable attitude to working with a person with severe physical disabilities than those in private employment or self employment. They also found that those who had some previous contact with people with disabilities had more favourable attitudes to working with people with severe physical disabilities. However 60% of respondents believed that those with severe physical disabilities would not be as productive on routine tasks as others employed to do this work.

Astonishingly a similar proportion believed most people with severe physical disabilities would be better off in sheltered workshops.¹⁸

Around this time also (1989) the Department of Employment, Education and Training and the Department of Social Security commissioned research into the employment of people with a disability, particularly the attitudes of employers to this prospect.¹⁹ A total of 152 employers were contacted, with a spread of small, medium and large firms. They found that many employers felt uncomfortable when dealing with people with disabilities. Feelings of concern, embarrassment, fear and doubt were expressed at the prospect of interviewing a person with a disability. More specific concerns included:

- ♦ Assumed inappropriateness of access, layout and environment.
- ♦ Unwillingness by employers to invest in workplace modifications.
- ♦ Lack of employer understanding about the nature and degrees of disability.
- ♦ Assumptions about mental/physical limitations, lack of skills, need for training and supervision, inappropriateness of available jobs.
- ♦ Concerns about greater potential for illness and injury, with workers' compensation ramifications.
- ♦ Concerns for safety.
- ♦ Concerns about workforce attitudes and reactions.

Studies such as these tempered the earlier simplistic approaches. There was hard work to be done if rehabilitation professionals were to be able to talk with employers in a meaningful way. There was a new appreciation of the complexity of factors influencing employer hiring decisions.

The circumstances were also changing on the employer side. In the early 1990s, in the afterglow of the ADA, greater interest can be seen in the

¹⁸ The Spastic Centres of Australia and the Equal Opportunity Commission, Employment Equals Opportunity, Proceedings of a conference held on 30 Oct 1991, 1-17.

vocational rehabilitation literature regarding the issue of the rehabilitation of injured workers by their employers. Apart from legal obligations, it became clearer that employers had genuine economic interests in retaining staff in whom they had invested training and skills. The rehabilitation sector now had a direct line to management's door, courtesy of the ADA.²⁰

A new survey of the Fortune 500 companies in 1992 received 341 responses (compared with 43 in 1979). Attitudes toward employing people with disabilities were more favourable in industrial rather than service organisations. Executives with prior contact with disabilities also had a more favourable attitude.²¹ A large survey of New York State employers around the same time found the most favourable responses came from the government sector, larger companies, women, those with higher education, those who have hired people with disabilities in the past and those who have had some previous experience with persons with disabilities.²²

Similar conclusions emerged in a study of 170 employers in Richmond, Virginia.²³ They found that 73% reported previous experience with a person with a disability in a work setting; of these, 97% rated the experience as positive. These attitudes were not related to employer size, knowledge of the ADA or attitudes to people with disabilities. The authors' conclusion is

¹⁹ Artcraft Research, People with Disabilities: Research Among Employers in NSW, Victoria and SA, 1989, Confidential report, 27 November.

²⁰ See Gottlieb A., et al, "The role of the rehabilitation professional in corporate disability management" Journal of Rehabilitation 1991, Apr-Jun, 23-28; Roessler R. and Schriener K., "Partnerships: The bridge from disability to ability management" Journal of Rehabilitation 1991, Jan-Mar, 52-58; Shoemaker R. et al., "Reaction to disability through organization policy: Early return to work policy" Journal of Rehabilitation 1992, Jul-Sep, 18-24.

²¹ Levy J. et al., "Attitudes of executives in Fortune 500 corporations toward the employability of persons with severe disabilities: Industrial and service corporations", Journal of Applied Rehabilitation Counseling 1993, 24/2, 19-31.

²² Levy J. et al., "Determinants of attitudes of New York State employers towards the employment of persons with severe handicaps" Journal of Rehabilitation 1993, Jan-Mar, 49-93.

positive: “Despite continuing concerns, employers’ familiarity with individuals with disabilities in their professional and personal lives seems likely to break down negative and prejudicial attitudes over time”.²⁴

A recent literature review of 37 studies on employer attitudes towards employees with a disability found that major trends identified in earlier studies have persisted. In essence, employers tended to have more positive attitudes to people with physical or sensory disabilities, as against those with intellectual disabilities; employers of larger firms had more positive attitudes than those in smaller firms; more highly educated employers had more favourable attitudes than those with less education; and employers with some previous contact with workers with disabilities also tend to hold more favourable attitudes towards this group. They also found that employers’ expressed willingness to hire applicants with disabilities continues to exceed their actual hiring.²⁵

Another study, of 123 employers who had hired a person from a vocational rehabilitation agency, found that over 80% had employed a person with a disability before. Nearly all were “glad” they hired a person with a disability.²⁶ Interestingly, most employers were unaware that they had been served by a vocational rehabilitation agency. Those that were aware were generally satisfied, but had mixed feelings about specific services.

Finally we can mention a recent article in which representatives of business are allowed to speak for themselves. As the authors note: “The employers’ perspective as to why people with disabilities are not employed is probably

²³ Kregel J. and Tomiyasu Y., “Employers’ attitudes toward workers with disabilities – Effects of the Americans with Disabilities Act” Journal of Vocational Rehabilitation 1994, 4/4, 165-173.

²⁴ ibid 173.

²⁵ Hernandez B. et al., “Employer attitudes towards workers with disabilities and their ADA employment rights: A literature review” Journal of Rehabilitation 2000, 66/4, 4-16.

²⁶ Gilbride D. et al, “Employers’ attitudes toward hiring persons with disabilities and vocational rehabilitation services” Journal of Rehabilitation 2000, Oct-Dec, 17-23.

quite different than rehabilitation professionals would expect”.²⁷ They discuss four employer “fears”:

1. Fear of the cost associated with hiring

Employers are concerned about the unknown cost of accommodations. Rehabilitation professionals could assist, they argue, by providing employers with information on techniques for reasonable accommodation.

2. Fear of additional supervision and loss of productivity

They note: “rehabilitation professionals do not know much about business and are often in a hurry to make a placement in order to please their supervisors or funders”.²⁸ It is up to the rehabilitation professional to make good and appropriate job matches.

3. Fear of being stuck forever

Employers fear they might be caught with a disabled employee if the job doesn’t work out. The authors argue that this fear could be addressed if employers were also seen as customers: “advocacy represents only one half of the equation. Rehabilitation professionals must begin to view the business community as their second customer. Professionals in this field must develop the same sensitivity to the needs of business as they possess for people with disabilities”.²⁹

²⁷ Peck B. and Kirkbride T., “Why businesses don’t employ people with disabilities”, Journal of Vocational Rehabilitation 2001 16, 71-75.

²⁸ ibid 73.

²⁹ ibid.

4. Fear of damaged goods

Approaches to employers based on charity are unlikely to succeed, they argue. Instead the person's ability and suitability to the task needs to be stressed, in a professional manner.

Employer attitudes to employing people with disabilities have featured as a major issue in the vocational rehabilitation literature. As we have seen, there has been a shift from curiosity and evangelism, to an approach that listens more carefully to employers. Recent studies display a greater attentiveness to the needs and perspectives of employers, and a realisation that complex factors are involved in the employer's decision to employ a person with a disability. There has been a welcome retreat from the naive view that it is somehow self evident that an employer should employ a person with a disability.

THE ADA AND WORK ADJUSTMENTS

Following the ADA and the subsequent prominence given to the concept of "reasonable accommodation", this issue has also arisen in the literature of vocational rehabilitation.

One study analyses the requests for information received by the *Job Accommodation Network* (JAN). Since its inception in 1983 the JAN has handled 72,000 cases; 33,000 of these were received between the introduction of the ADA in 1990 and 1994. The study examined 2,093 cases and found that seeking information about the operation of the ADA was the main issue for both employers and employees (61.2% and 50.3% respectively). For employees, the second most important issue (32.1%) was handling

difficulties with government agencies; for employers it was the impact of accommodation (37.1%).³⁰ The authors commented:

We expected to find that most calls would involve a new position, that is, an applicant with a disability had applied for employment and the caller was exploring possible accommodations for use in that job. In fact, most calls were related to the retention of a current employee with a disability.³¹

This highlights the need for vocational rehabilitation services to extend beyond the initial placement. Issues of adjustment, including assistive technology issues, arise during the course of employment, not just at the commencement of the employment.

The study also found that nearly 70% of cases involved high-level employees, from managerial or technical fields.³²

A subsequent study also examined data from the *Job Accommodation Network*.³³ They also found that most accommodations were for job retention, improvement or advancement (84%), with only 10% relating to the hiring of a new employee. They also found that 79% of accommodations were for the purpose of purchasing new equipment, with the remainder for purposes such as policy modifications, job restructuring, transfers and worksite modification.

Cost information was also provided in this study. The median cost for an accommodation was \$200, with over 80% of accommodations costing less than \$1000. Employers were asked to estimate the benefits they received from making the accommodations, and the median benefit was valued at

³⁰ Hendricks D., et al., "Real life issues in job accommodation: Employers' and employees' perspectives" *Journal of Vocational Rehabilitation* 1994, 4/3, 174-182.

³¹ *ibid* 181.

³² *ibid*.

³³ Dowler D. et al., "Outcomes of reasonable accommodation in the workplace" *Technology and Disability* 1996, 5, 345-354.

\$10,000. This yielded a benefit to cost ratio of \$50 benefit for every \$1 of accommodation cost.³⁴

However Baldrige's study gives another explanation of the low cost of workplace accommodations – that workers are unwilling to request such accommodations.³⁵ Reasons for this include doubts about the usefulness of the accommodation, concerns about how it will be perceived by others, and fears about the reaction of management. The context in which a person works will have a large bearing on the likelihood of their requesting an accommodation.

Concern has been expressed more recently about the failure of the ADA to improve the employment outcomes for people with disabilities or to change patterns of discrimination.³⁶ Barriers such as transport, the need for personal assistance, the need for assistive technology and the failure of employers to recognise that people with a disability can do a good job, still persist.³⁷

EMPLOYMENT PATTERNS AND OUTCOMES

There have been many studies that have sought to investigate factors that would explain the employment patterns of people with disabilities; many of these have focused on people with spinal injury.

Ghatit and Hanson (1979) studied 745 patients from a rehabilitation centre in California. They found that educational level at the time of the survey was a

³⁴ *ibid* 351.

³⁵ Baldrige D., "Towards a greater understanding of the willingness to request an accommodation: Can requesters' beliefs disabled the Americans with Disabilities Act?" *Academy of Management Review* 2001, 26/1, 85-99.

³⁶ Schall C., "The Americans with Disabilities Act – Are we keeping our promise? An analysis of the effect of the ADA on the employment of people with disabilities", *Journal of Vocational Rehabilitation* 1998, 10/3, 191-203.

³⁷ Inge K. et al, "Vocational rehabilitation for persons with spinal cord injuries and other severe physical disabilities" *American Rehabilitation* 1996 Winter 22/4, 2-12.

major factor favouring employment, however educational level at time of injury was not.³⁸ Krause's study (1992) of 286 patients with spinal cord injury also found that "educational level was clearly the most important in relation to employment outcomes".³⁹ However his study did not distinguish between education gained prior to the injury and that obtained subsequently.

We can note there is a simple explanation of the different effects of pre-injury and post-injury education. The former represents career directions that may no longer be relevant. The person's injuries may now make those qualifications redundant. The latter represents career directions that have been nominated in full awareness of the person's new circumstances. Post injury education also reflects a degree of acceptance of one's circumstances, sufficient to begin planning a future around it.

Krause's study is also interesting in that he found that 48% of participants were employed at the time of the study, while 75% had worked at some stage since their injury. Only 12% of those who were employed prior to their injury returned to their former jobs.

Castle (1994) surveyed 114 former patients of an acute spinal unit in the UK.⁴⁰ He found 31% were employed. Key factors were age (younger patients were more likely to be employed) and education. Quadriplegic patients tended to be concentrated in clerical/administrative roles, whereas those with paraplegia had a wider range of job categories. This survey also found that 90% of those in the survey who were computers owners said this was essential or very important to them in everyday life.

³⁸ Ghatit A. and Hanson R., "Education and training levels and employment of the spinal cord injured patient" Archives of Physical Medicine and Rehabilitation, 1979, 60, 405-406.

³⁹ Krause J., "Employment after spinal cord injury" Archives of Physical Medicine and Rehabilitation 1992, 73, 163-169.

⁴⁰ Castle R., "An investigation into the employment and occupation of patients with a spinal cord injury", Paraplegia 1994, 32, 182-187.

Young et al. summarise the demographic and injury related variables that previous studies have linked to vocational status:

Demographic variables include sex, marital status, number of children, ambulation required in last job, motivation to work, race, vocational training, education, age, financial status, pre-injury education, vocational development and employment. Injury-related variables have included level of injury, age at injury, cause of injury, duration of injury and ability to drive. Sociological variables posited to be related to vocational outcomes include financial disincentives and employer attitudes.⁴¹

The authors claim to avoid some of the sampling problems of previous studies by making a random selection of people with spinal cord injury living in the community. Of the 140 participants 27% were found to be in paid employment, 35% in unpaid productive activities and 38% “unemployed”. While males were twice as likely as females to be in paid employment, females were much more likely to be in a “positive vocational mode” (employed or in unpaid productive activity). Their analysis revealed education and disability (determined from a functional independence measure) were independent predictors of employment.

Their view, and one with which I would tend to agree, is that a snapshot view of employment status is preferable to studies that look at whether people have been employed at all since injury.

Cumulative employment over time provides a distorted picture of vocational status because it counts individuals who have limited vocational success as having positive outcomes.⁴²

Three recent studies have involved large groups of people with spinal cord injury. The first, involving 1,032 participants, linked current employment

⁴¹ Young M. et al., “Vocational status of persons with spinal cord injury living in the community”, *Rehabilitation Counseling Bulletin* 1994, 32/3, 229-243. Quote is from 231.

⁴² *ibid* 240.

status to injury level, years of education and age at injury onset (with a younger age associated with a greater likelihood of employment).⁴³

The second study, by Krause et al., examined data from 3,756 individuals with spinal cord injury on the National Spinal Cord Injury Statistical Center database.⁴⁴ They conclude, “consistent with previous research, education was the single most important factor related to employment”.⁴⁵ Severity of disability was also an important factor. Interestingly they found that being employed at the time of the injury was associated with a greater likelihood of working initially, but the pattern was reversed after 10 years.

A third study by Hess et al. examines the factors influencing return to work after spinal cord injury.⁴⁶ The most important factors were education, level of disability (as measured by a Motor Index Score), ethnicity and age. Gender was not found to be a significant variable.

These studies are remarkably consistent in nominating education, age and level of disability as key determinants of the employment prospects of people with spinal cord injury.

Other studies have sought to examine the impact of employment on the quality of life of people with spinal injury. A study by Krause and Anson (1997) linked employment with a higher quality of life and superior overall adjustment.⁴⁷ This issue was also addressed in a recent study by Chase et al.

⁴³ Krause J. et al., “Employment after spinal cord injury: Differences related to geographic region, gender and race”, Archives of Physical Medicine and Rehabilitation 1998, 79, June, 615-624.

⁴⁴ Krause J. et al., “Employment after spinal cord injury: An analysis of cases from the Model Spinal Cord Injury Systems”, Archives of Physical Medicine and Rehabilitation 1999, 80, Nov, 1492-1500.

⁴⁵ ibid 1498.

⁴⁶ Hess D. et al., “Predictors for return to work after spinal cord injury: A 3 year Multicenter Analysis”, Archives of Physical Medicine and Rehabilitation 2000, 81, Mar, 359-363.

⁴⁷ Krause J. and Anson C., “Adjustment after spinal cord injury: Relationship to participation in employment or educational activities” Rehabilitation Counseling Bulletin, 1997, 40/3, 202-214.

(2000)⁴⁸ in which 158 people with spinal cord injury responded to a web-based survey. A Life Satisfaction Index score was then related to seven independent variables. Of these, *marital status* and *personal control* provided the major variations in the analysis. The perception of *personal control* increased when participants took responsibility for directing and arranging their personal assistants. Also “persons employed at least part time were found to perceive more control, experience less handicap, and perceive more satisfaction with life”.⁴⁹

Finally we can note a recent study that examines the employment satisfaction of people with spinal cord injury.⁵⁰ While acknowledging the likely connection between employment and quality of life, this study found that 58% of those who were employed would either change jobs completely or some aspect of their work (such as job duties, the people with whom they work, the hours they worked or their job schedule). The authors argue that specialised training and job matching is essential, as well as access to assistive technology: “There continues to be a vacuum in the service delivery mechanism to get important, technologically advanced assistive devices and services to those individuals with SCI [spinal cord injury], especially in the workplace.”⁵¹

CAREER DEVELOPMENT

There has been a shift from seeing vocational rehabilitation as being involved only at the placement and early employment stage, to one where support is seen as being needed to assist a person to advance and develop their career.

⁴⁸ Chase B. et al., “Life satisfaction among persons with spinal cord injuries” Journal of Rehabilitation 2000, Jul/Sep, 14-20.

⁴⁹ ibid 18.

⁵⁰ Wehman P. et al., “Employment satisfaction of individuals with spinal cord injury”, American Journal of Physical Medicine and Rehabilitation 2000, 79/2, 161-169.

This was one of the main themes at the 14th Mary Switzer Memorial Seminar in 1990.⁵²

More recently the issue was addressed by Roessler and Rumrill.⁵³ They quote an earlier study of 2,536 former vocational rehabilitation clients that revealed that only 51% remained employed a year later. There is a need, they argue, for post employment support services, especially in the areas of technology and job changes. Crucial to this process is the ADA itself, with its collaborative process for meeting accommodation needs. Employees need to take the initiative however, to identify their needs for reasonable accommodation and make them known to their employers.

The same authors developed these ideas more forcefully in 1999.⁵⁴ They observe “discussions about employment services for the future reflect a shift in thinking about rehabilitation outcomes from occupational choice to career development”, the latter being a “life-long process”.⁵⁵ They apply career development models to the needs of people with disabilities, with an emphasis on career *establishment* (which includes adapting to the organisation’s culture, relating well to co-workers, advancing the job and maintaining satisfactory performance) and *maintenance* (coping with on-the-job stressors, which can be positive or negative). They suggest vocational rehabilitation (VR) agencies should employ career maintenance specialists for this role.⁵⁶

⁵¹ *ibid* 168.

⁵² Hansen C and Perlman L., “Employment and disability: Issues and Solutions for the 1990s” *Journal of Rehabilitation* 1990, Oct-Dec, 9-13. Other main issues were business needs for a ‘one-stop-shop’, the need to develop services for small business and a need to adapt the Supported Employment model for individuals who are not developmentally disabled.

⁵³ Roessler R. and Rumrill P., “Promoting reasonable accommodations: An essential postemployment service” *Journal of Applied Rehabilitation Counseling* 1995, 26/4, 3-7.

⁵⁴ Rumrill P. and Roessler R., “New directions in vocational rehabilitation: A ‘career development’ perspective on ‘closure’” *Journal of Rehabilitation* 1999, Jan-Mar, 26-29.

⁵⁵ *ibid* 26.

⁵⁶ *ibid* 29.

Roessler applies these insights to the situation of people with spinal cord injury in a recent article.⁵⁷ He notes that many people with spinal cord injury (SCI) fail to maintain their jobs, thus denying them a major source of life satisfaction. One major reason for loss of tenure is the failure to deal adequately with issues affecting access and satisfaction at work. He refers to a recent study of services provided by the *Job Accommodation Network* to people with SCI. Around 50% of the 1058 employees involved sought advice on new products or modifications of existing equipment (e.g., alternative computer input devices). “Approximately 75% of the employees with SCI in the sample requested help with accommodations in order to maintain their current jobs or improve their productivity in those jobs”.⁵⁸ He goes on to recommend the involvement of “job maintenance services from a career development specialist in rehabilitation”.⁵⁹ This has relevance for the main themes in this thesis. There is a strong suggestion that for a person with quadriplegia to maintain and develop their employment, they will require continuing assistance and advice regarding workplace accommodations. Changes in the area of computer technology will, one suspects, be an important part of this process.

Schlenoff suggests that standard models of career development are not applicable to those with quadriplegia.⁶⁰ He suggests a number of stages through which the newly injured person must go, before employment can be realistically considered. These stages include Denial, Mourning, Acceptance, Exploration, Crystallisation and finally Employment. He notes: “Throughout these stages, the client requires a great deal of emotional support from family, friends and professionals in order for him to regain his independence

⁵⁷ Roessler R., “Job retention services for employees with spinal cord injuries: A critical need in vocational rehabilitation” *Journal of Applied Rehabilitation Counseling* 2001, 32/1, 3-9.

⁵⁸ *ibid* 6.

⁵⁹ *ibid*.

and feelings of self worth". It is "a unique process, yet one which seems to be intertwined with the physical and psychological growth of the individual as he moves through a frightening and unprecedented 'obstacle course' with which he is suddenly confronted at a given point in his life".⁶¹

Sowers examines the role of technology in career planning.⁶² She cautions against basing career choices on technological possibilities:

The focus on computer-related occupations also reflects the tendency for technology to drive the career planning process. Many formal and informal assessments attempt to identify the types of technologies that the individual can or could use. The assessments then make recommendations for careers that the person should pursue based on these technologies (e.g., a person can use a voice-activated computer, so a computer job should be sought for him or her). More appropriately, the career plan *should* determine whether technology is needed and, if so, what kind will be needed to enable the individual to obtain the type of job he or she desires. In other words, the career plan should lead to the type of technology used, not vice versa.⁶³

These sentiments are respected, but it should be acknowledged that for many people with disabilities, the productive opportunities afforded by technology will shape their career directions. *What is possible* is just as relevant a concern as *what is desirable*. Technology can expand choice and allow personal preferences and ambitions to be expressed.

Other studies have examined different aspects of career development for people with disabilities. One study found gender to be a bigger factor in

⁶⁰ Schlenoff D., "A theory of career development for the quadriplegic" Journal of Applied Rehabilitation Counseling 1975, 6/1, Spring, 3-11.

⁶¹ ibid 9, 11.

⁶² Sowers J., "Adaptive Environments in the Workplace" in Flippo K. et al., Assistive Technology – A Resource Book for School, Work and Community 1995, Paul H. Brookes, Baltimore, Chapter 8, 167-185.

⁶³ ibid 169.

career development than disability.⁶⁴ Another study found that employers rate the promotion prospects of people with disabilities differently according to the type of disability, and that this variation is linked to the personal blame that could be attached to the condition (with obesity and depression being the most unfavourable).⁶⁵

The study by McNeal et al. reminds us that many people with disabilities confront functional declines associated with ageing.⁶⁶ This gives the need for career planning and post-placement support services a new twist. Such services may be required simply to maintain employment rather than to advance a person's career. They found that 98% of those with postpolio and 34.8% of those with spinal cord injury faced additional functional deficits since their injury. They note that their group with spinal cord injury was "young", with an average age of 42.2, when studies show that functional decline usually occurs in the late 40s and early 50s.

HOME-BASED EMPLOYMENT

Home-based work options for people with disabilities have been canvassed in the vocational rehabilitation literature, an early example being Vagnoni and MacLeod.⁶⁷ While they endorse the potential of *teleworking*, they point to caveats such as the person may not have the skills to manage their work at home and they may choose not to work at home. "Encouraging handicapped people to work in their homes seemed to eliminate the necessity for people to get out to work, and thereby mute this legislative

⁶⁴ See DeLoach C., "Gender, career choice and occupational outcomes among college alumni with disabilities", Journal of Applied Rehabilitation Counseling 1989, 20/4, 8-12.

⁶⁵ Bordieri J. et al., "Work life for employees with disabilities: Recommendations for promotion" Rehabilitation Counseling Bulletin 1997, 40/3, 181-191.

⁶⁶ McNeal D. et al., "Work problems and accommodations reported by persons who are postpolio or have a spinal cord injury", Assistive Technology 1999, 11, 137-157.

⁶⁷ Vagnoni J. and MacLeod K., "Home-based employment for disabled persons: A choice, not a foregone conclusion" American Rehabilitation 1986 12/4 6-7,21-22.

triumph [Rehabilitation Act of 1973] and its promise of independent living through an accessible mainstream".⁶⁸

This argument was put more forcefully recently by Light.⁶⁹ She argues that telework ("computer mediated communication") "potentially reverses policies of inclusion by substituting home-bound labor for physical and social changes in the workplace. While telecommuting offers superb opportunities for people with disabilities to earn a living, it simultaneously risks normalizing their physical isolation".⁷⁰ She sees this danger as urgent, because in some rulings telecommuting has been accepted as a workplace accommodation under the ADA. She argues that while proponents of teleworking parade only its positive potential, there are dangers as well. These include questions over the authenticity of interactions in a virtual community not reinforced by face-to-face interactions, isolation ("a nation of electronic hermits") and meaningless work in which the home becomes a prison.⁷¹

However more recent analyses of this issue from a rehabilitation perspective highlight the fact that teleworking (or telecommuting) is becoming increasingly prevalent in mainstream work environments, and should therefore be available as an option for people with disabilities. One study suggests that by 2010 as much as 40% of the American workforce will be telecommuting at least some of the time.⁷² The authors quote "recent research" (unspecified) that "indicates that as many as 12% of VR [vocational rehabilitation] clients need home-based employment options if they are to

⁶⁸ *ibid* 7.

⁶⁹ Light J., "Separate but equal? Reasonable accommodation in the information age" *APA Journal* 2001, 67/3, 263-278.

⁷⁰ *ibid* 264.

⁷¹ *ibid* 270-271.

⁷² Rumrill P. et al., "New directions in home-based employment for people with disabilities" *Journal of Vocational Rehabilitation* 2000, 14, 3-4.

participate in the competitive labor market".⁷³ As to the objection that teleworking may isolate people with disabilities, the authors comment:

The real question here is what is normative. Especially for people who incur disabilities in mid-career, time around the water cooler or lunch with co-workers may not be high priorities.⁷⁴

Bromet and Growick also favour telework as an option for people with disabilities based on its increasing prevalence in the general community.⁷⁵ It has advantages such as allowing frequent rest periods, a flexible choice of work periods, no transportation problems and no problems of access to the workplace. Possible disadvantages include social isolation, lack of support, limited promotion opportunities and distractions at home. They see telework as an example of *sub-sedentary work* and as offering a potential form of *bridge employment* (to train an injured worker in skills ready for new employment). They conclude:

Although telecommuting is not the ideal for all individuals, it serves as a growing alternative for many employees because it provides unique opportunities for people with disabilities, and can ultimately enhance both employment and earnings.⁷⁶

INDIVIDUAL PERCEPTIONS OF WORK

The issue of the *meaning of work* for people with disabilities is a theme in the literature. One recent study found that while families were more concerned about their family member's self esteem and psychological well-being, disabled workers were themselves more concerned with productivity, job

⁷³ *ibid* 3.

⁷⁴ *ibid* 4.

⁷⁵ Bromet E. and Growick B., "Telework: A new frontier in vocational rehabilitation" Journal of Applied Rehabilitation Counseling 2001, 32/2, 19-24.

⁷⁶ *ibid* 23.

benefits and discrimination. Family members were more protective, while consumers were more risk-takers.⁷⁷

Similar sentiments were raised in a recent study of people with cerebral palsy. 84% of participants felt their parents were over-protective and expressed a desire to take more risks in their lives.⁷⁸

A recent study by Fiedler et al. examines the barriers to work as perceived by individuals with spinal injury.⁷⁹ While the study does not distinguish between those with paraplegia and those with quadriplegia, it does distinguish between the perceptions of those not employed and those in employment. Those who were not employed rated transportation as their main barrier (54%), followed by “funds not compensating for benefit loss” (45%). Interestingly this group had more negative perceptions of workplace issues compared with those actually working. For instance, the not working group had concerns about not being able to get time off for health related issues (40%, as compared with 13% for those employed), the lack of workplace accommodations (39% v. 9%) and the attitude of co-workers (19% v. 3%). This supports the view that many of the fears about work held by people seeking work are unfounded in practice.

Those working perceived far fewer barriers to employment, but the main ones mentioned were transportation and the lack of social security benefits (both 25%). The prominence of transportation issues for both groups highlights its importance for people with spinal cord injury, a fact that is not often acknowledged in the literature.

⁷⁷ Freedman R., and Fesko S., “The meaning of working in the lives of people with significant disabilities: Consumer and family perspectives” Journal of Rehabilitation 1996, Jul-Sep, 49-55.

⁷⁸ Murphy P. et al., “Employment and social issues in adults with cerebral palsy”, Archives of Physical Medicine and Rehabilitation 2000, 81, June, 807-811.

⁷⁹ Fiedler I., “Perceived barriers to employment in individuals with spinal cord injury”, Topics in Spinal Cord Injury Rehabilitation, 2002, 7/3, 73-82.

A recent study by Shaw et al. highlights the importance of two perceptual factors in understanding the return to work experiences of people with disabilities. These are the *meaning of disability* (including such factors as their experience of illness, the impact of their disability and their sense of “getting better”) and the *return to work relevancy* (including the personal meaning of work, their personal motives for work and their opportunities and expectations regarding work). They stress that these factors are distinct from the individuals’ biological disability.⁸⁰

VOCATIONAL REHABILITATION MODELS

The vocational rehabilitation literature does not often produce theories or models, but one exception to this has been the work of Hershenson, who has been gradually refining models of workplace adjustment and rehabilitation counselling for over 20 years. The latest incarnation of his model of work adjustment⁸¹ essentially links the “intrapsychic domains” of work personality, work competencies and work goals to concentric circles of influence. This he terms a “systems model”. The model for rehabilitation counselling⁸², termed a “systemic, ecological model”, is similar. It is hard to imagine that these myopic attempts at theory would have any practical relevance for people in the vocational rehabilitation field. Their insights could be distilled into a sentence: rehabilitation must take into account a variety of factors.

⁸⁰ Shaw L. et al., “Understanding return to work behaviours: promoting the importance of individual perceptions in the study of return to work”, Disability and Rehabilitation 2002, 24/4, 185-195.

⁸¹ Hershenson D., “A systems reformulation of a developmental model of work adjustment”, Rehabilitation Counseling Bulletin 1996, 40/1, 2-10.

⁸² Hershenson D., “Systemic, ecological model for rehabilitation counseling”, Rehabilitation Counseling Bulletin 1998, 42/1, 40-50.

OTHER ISSUES

Many other issues are discussed in vocational rehabilitation journals. Much of this discussion concerns types of services and programs. Some articles of relevance to this study are summarised below.

In 1990 Olander et al. found wide variations in the performance of various *vocational rehabilitation programs*. These variations were not linked to funding or to the level of disability among clients.⁸³ The variable quality of such programs is a common complaint made by employers of people with disabilities.

Some articles have stressed the *natural supports* available in the workplace. Nisbet and Hagner, for example, comment: "Vocational service professionals must see themselves as facilitators rather than as providers. They must realize that their ultimate goal is to put themselves out of business."⁸⁴

Some vocational rehabilitation literature examines *future economic and work trends* on a broader scale.⁸⁵ In some respects, the marketing strategy behind much vocational rehabilitation, of promoting the reliability and low turnover of employees with disabilities, may be misplaced in a work world requiring flexibility, constant re-skilling and subject to frequent re-structuring. Alternatively, future labour shortages due to demographic changes may increase employment opportunities for people with disabilities.

Computer technology and its role in vocational rehabilitation is another major theme in the literature, but in this it overlaps with another area of study with

⁸³ Olander C. et al., "An agenda for excellence: The search for exemplary vocational rehabilitation services" Journal of Rehabilitation 1990, Jan-Mar, 17-18.

⁸⁴ Nisbet J. and Hagner D., "Natural Supports in the Workplace: A reexamination of supported employment" Journal of the Association for Persons with Severe Handicaps 1988, 13/4, 263; and Trach J. and Mayhall C., "Analysis of the types of natural supports utilized during job placement and development", Journal of Rehabilitation 1997, Apr-Jun, 43-48.

⁸⁵ For example, Roessler R., "Work, disability and the future: Promoting employment for people with disabilities" Journal of Counseling and Development 1987, 66 Dec, 188-190; and

its own literature and methodology – *assistive technology*. This will be our concern in the next section.

SUMMARY – VOCATIONAL REHABILITATION

Vocational rehabilitation contributes to our wisdom and understanding of the factors influencing the employment of people with a disability. It does so especially by increasing our understanding of real-life concerns of employers. Those involved in this field have come to realise that the benefits of hiring a person with a disability are not self evident to employers. They have persistent concerns regarding productivity, safety and job flexibility. Many are still uncomfortable with people who have disabilities, especially those with intellectual disabilities. Like others in the community, their attitudes are softened by previous contact with people with a disability.

Studies of the employment of people with spinal cord injury are virtually unanimous in nominating education as a major factor, with severity of disability and age also featuring prominently.

From vocational rehabilitation we hear again that larger firms are better equipped to accommodate workers with disabilities and to support them than are smaller companies. We also observe a movement from simple job placement to a focus on careers and to the development of the employee within the company. Studies from this field also contribute to our knowledge regarding the meaning work for people with disabilities.

The isolation of vocational rehabilitation from other disciplines tends to make its analyses descriptive rather than analytical. It also leads to naive reporting of factual information: several recent articles by respected authors confuse the *unemployment rate* with the *labour force participation rate*. Thus Freedman and Fesko speak of the “astoundingly high unemployment rate

Ryan C., “Work isn’t what it used to be: Implications, recommendations and strategies for

(67%) of people with disabilities in the United States";⁸⁶ while Inge refers to those who are *not employed* as the *unemployed*.⁸⁷ Young et al. make the error explicit: "*Employment* is traditionally defined as paid work activity (either full time or part time) and *unemployment* as anything other than paid work".⁸⁸ Such confusion ignores the important distinction between a person who is *not in the labour force* and one who is in the labour force but *unemployed*.

As with other disciplines, but with perhaps less excuse, we can note that vocational rehabilitation is also guilty often of presenting articles that fail to differentiate between different types and severity of disability.

Assistive Technology

BACKGROUND

The final area of study to be included in this review is that of *assistive technology*. It can be defined as:

Any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.⁸⁹

Both vocational rehabilitation and assistive technology can be regarded as subsets of the general field of rehabilitation. They also share an area of overlap.

Like vocational rehabilitation, assistive technology is more like an area of study than a discipline. However there have been some attempts to

vocational rehabilitation" Journal of Rehabilitation 1995, Oct-Dec, 8-15.

⁸⁶ Freedman and Fesko op cit.

⁸⁷ Inge op cit.

⁸⁸ Young et al., op cit., 230.

construct a theoretical framework and methodology, the best known and respected being Cook's "human activity assistive technology" (HAAT) model.⁹⁰ It is based on a human performance engineering model and is essentially a framework in which human performance, assistive technology and the environment combine to produce desired activities (which are the "goals" of the system). The model is well known but does not seem to appear often in the literature.

Assistive technology brings together people from a wide variety of disciplines, the main ones being rehabilitation engineering, occupational therapy and special education. The areas of technology involved are also broad, encompassing wheelchairs and seating, prosthetic limbs, alternative communication devices, environmental control devices and personal computers. In Australia there is a professional association, the Australian Rehabilitation and Assistive Technology Association (ARATA), modelled on the Rehabilitation Engineering Society of North America (RESNA, now called the Rehabilitation Engineering and Assistive Technology Society of North America) in the USA, and conferences have been held every two years since 1993.

We limit ourselves to one slice of assistive technology in this review – computers, and their link to employment. Such a link was identified very early in the age of computers. One of the first practical ventures to connect people with disabilities to computers was NADOW (National Association for Training the Disabled in Office Work) in 1973 in Sydney. People with

⁸⁹ Technology Related Assistance of Individuals with Disabilities Act of 1988 (P.L. 100-407), quoted in Scherer M., "Outcomes of assistive technology use on quality of life" Disability and Rehabilitation 1996, 18/9, 439.

⁹⁰ Cook A. and Hussey S., Assistive Technologies: Principles and Practice 1995, Mosby, St Louis.

physical disabilities were trained in general computer use and programming.⁹¹

The advent of the personal computer in 1980 opened the door to the application of PCs to rehabilitation. People were quick to make the connection, although Vanderheiden expressed caution: "the microcomputer's potential is in many ways overestimated and its application oversimplified".⁹² While he sees the electronic age as breaking down many barriers, he notes: "the more important barriers in this area are not technical barriers, but barriers to the successful utilization and application of these technologies".⁹³ He identifies weaknesses in the skill required to apply and adapt these new technologies in rehabilitation programs.⁹⁴

Vanderheiden continues and intensifies these themes in a later article where he defends the role of "fundamental" technologies over "advanced" technologies. He argues: "the solutions lie not in the technologies alone, but in the combination of technology, therapy, and other rehabilitation program components".⁹⁵ He sees many therapists as unprepared to understand, assess and adapt the newer technologies. There is the danger that "technology might become a goal rather than a tool in the rehabilitation process".⁹⁶ New questions were asked: "Who should be applying rehabilitation technologies (i.e., which discipline(s) should be doing the evaluation, selection, fitting and therapy)?"⁹⁷

⁹¹ Blackmore S., "A computer training scheme for the disabled" The Australian Director 1980 Dec, 60-67.

⁹² Vanerheiden G., "The practical use of microcomputers in rehabilitation" Rehabilitation Literature 1983, 44/3-4, 66.

⁹³ ibid 70.

⁹⁴ ibid.

⁹⁵ Vanerheiden G., "Service delivery mechanisms in rehabilitation technology" American Journal of Occupational Therapy 1987, 41/11, 703-710.

⁹⁶ ibid 710.

⁹⁷ ibid 708.

This caution, almost defensiveness, on the part of therapists and others with regard to the role of computers in rehabilitation in the late 1980s has been noted in the area of cognitive rehabilitation.⁹⁸ Early enthusiasm gave way to a reaction in defence of the profession.

There were also practical problems facing consumers of assistive technology in the USA:

Acquiring AT poses many problems for disabled persons. They are faced with complicated and cumbersome requirements of federal programs; lack of funds to purchase AT; absence of a centralized information and evaluation system; fraud and abuse by some medical suppliers; and inconsistent policies within and between programs. Recognizing these problems, Congress passed the Technology Related Assistance for Individuals With Disabilities Act (Tech Act) of 1988.⁹⁹

The *Technology-Related Assistance for Individuals with Disabilities Act of 1988* was America's "first-ever legislation specifically about technology and people with disabilities" which "authorized modest sums of money for states to use in educating people with disabilities about products, and in putting technology experts in touch with individuals who need those devices".¹⁰⁰ It has been recently revitalised as the *Assistive Technology Act of 1998* (as discussed in the previous chapter).

We should note that not all assistive technology is specialised. Often a judicious use of existing or mainstream technology will be effective. Langton

⁹⁸ Smith G., The Recreational Use of Computers for People with Traumatic Brain Injury, 2001, (Unpublished research report, available at: www.abilitytech.com.au/research).

⁹⁹ O'Day B and Corcoran P., "Assistive technology: Problems and policy alternatives", Archives of Physical Medicine and Rehabilitation 1994, 75, Oct, 1165-1169, 1168.

¹⁰⁰ Scherer M., Living in the State of Stuck – How Assistive Technology Impacts the Lives of People with Disabilities 2000, 3rd edn, Brookline, Cambridge MA, ix.

and Ramseur argue that around 80% of assistive technology solutions involve some use of existing products.¹⁰¹

Lane has recently looked at the process of “technology transfer” in assistive technology, i.e., the way in which commercial products are adapted and brought to market in assistive technology. He notes that assistive technology currently consists of small, niche markets, with customers who are difficult to identify, are not typically affluent and who often rely on 3rd party sponsorship. There are approximately 2000 companies in the assistive technology marketplace in the USA. He discusses at length the process by which new technologies could be adapted to assistive technology.¹⁰²

Australia does not have the legislative support for assistive technology that is available in the USA, and this is reflected in the patchy usage of assistive technology in this country. One study found that 75% of people with physical disabilities were current computer users. About 50% of those using assistive devices with their computer indicated they could not use a computer without them. Around 75% of respondents wanted to undertake further computer training. The author concludes: “The minimal use of assistive technology by people with physical disabilities is a great concern and needs to be addressed”. Further, “while many people with disabilities have used computers and assistive devices, many have not and are not taking full advantage of the opportunities presented by technology”.¹⁰³

¹⁰¹ Langton A. and Ramseur H., “Enhancing employment outcomes through job accommodation and assistive technology resources and services” Journal of Vocational Rehabilitation 2001, 16, 27-37.

¹⁰² Lane J., “Technology evaluation and transfer in the assistive technology marketplace: terms, process and roles” Technology and Disability 1997 7, 5-24.

¹⁰³ Pell S. et al., “Use of technology by people with physical disabilities in Australia” Disability and Rehabilitation 1999, 21/2, 56-60.

TECHNOLOGY ABANDONMENT

One prominent theme in assistive technology literature, relevant to the use of computers by people with quadriplegia, is that of *technology abandonment* by users. Several studies have examined factors leading to discontinuance in the use of assistive technology devices. Reliability has been identified as a major factor in technology abandonment. Other factors include changes in the person's functional capacities, inadequate training and support, and inappropriateness of the device.¹⁰⁴

A recent survey found that computers were the most popular assistive technology devices obtained by consumers. They also had a relatively low rate of discontinuance (27.6%) compared to other types of assistive technology. The main factors in technology abandonment in this study were *relative advantage* (the relative advantage of continued use over discontinuing its use) and *consumer involvement* in the selection of the devices.¹⁰⁵ While this study is useful, its "relative advantage" variable is troublesome. It is determined from answers given to nine questions, which appear to be slanted already in a positive or negative direction e.g., *How hard is your assistive technology device to use?* These are not weighted in any way to reflect user preferences. The notion of "relative advantage" may in fact be just a description of the process by which a person makes a decision, rather than an explanation of the outcome of that decision.

A fuller discussion of issues surrounding technology abandonment can be found in Scherer.¹⁰⁶ She and others stress the need for the person to be at the

¹⁰⁴ Phillips B and Zhao H., "Predictors of assistive technology abandonment" Assistive Technology 1993, 5, 36-45.

¹⁰⁵ Riemer-Reiss R. and Wacker R., "Factors associated with assistive technology discontinuance among individuals with disabilities" Journal of Rehabilitation 2000 Jul-Sep, 44-50.

¹⁰⁶ Scherer 2000 op cit., 122 and *passim*; and also "Outcomes of assistive technology use on quality of life" Disability and Rehabilitation 1996, 18/9, 439-448.

centre of the process of assistive technology selection. Technology that is imposed on a user is more likely to fall into disuse.

Nevertheless the high rate of abandonment of assistive technology has provided a background or context for much of the literature in this field. A key issue has become: *What is the best way of connecting people with assistive technology so that they will not discard the technology?*

MODELS

The proper service delivery model for assistive technology has therefore become an issue of debate in this sector. Mann describes four models:

- ♦ Consumer Purchase Model. The person or their family hears about the device and purchases it.
- ♦ Rehabilitation Service Model. Devices are prescribed following a medical approach.
- ♦ Independent Living Centres Model. These are demonstration centres but generally lack the expertise for new technologies.
- ♦ Educational Centres Model. Through schools.

He sees weaknesses in each of these models, especially in their failure to address *vertical integration*. This term refers to the need for services to cover a person's geographical movements and also their changes through life.¹⁰⁷

A recent article by Pape et al. stresses the importance of the meanings that users attach to assistive technology.¹⁰⁸ Significant differences to these meanings are identified for older adults, persons with acquired disabilities,

¹⁰⁷ Mann W., "State-wide planning for access to technology applications for individuals with disabilities" Journal of Rehabilitation 1991, Jan-Mar, 17-20.

¹⁰⁸ Pape T. et al., "The shaping of individual meanings assigned to assistive technology: A review of personal factors" Disability and Rehabilitation 2002, 24/103, 5-20.

persons with congenital disabilities and persons with functional limitations due to progressive diseases. They conclude: "Rate of device use is likely to be higher if the assistive device matches the individual's meaning ascribed to AT".¹⁰⁹ This is a useful article, showing clearly that people approach assistive technology from very different angles. However the subtlety of the analysis of personal factors is not matched on the assistive technology side. No attempt is made to differentiate between the different types of assistive technology, which can range from prosthetic limbs to voice recognition systems. Such a failure is not uncommon in this field. It should be accepted that "assistive technology" is a label that makes more sense to therapists and other practitioners than it does to individuals with disabilities.

ASSISTIVE TECHNOLOGY AND EMPLOYMENT

Several studies have linked computer activity to *employment*. One survey of 391 people with spinal cord injury in New Jersey found that although 93% had some pre-injury employment, only 30% were employed at the time of the survey.¹¹⁰ There was a not unexpected shift by re-employed workers from blue collar to white collar jobs. While average hourly pay of re-employed workers was only about 5% lower on average than it was before their injury, overall earnings fell by 25% due to a reduction in average weekly hours worked. Almost 75% received some form of disability income.

This important study, undertaken in 1994, showed that 46% of respondents overall used a computer. Less than a third used a computer in their pre-injury work, but 65% of those re-employed used a computer at work. Only 13% of current computer users required adaptive devices or software, but this study group included paraplegics as well. Computer use was lower than

¹⁰⁹ *ibid* 13.

¹¹⁰ Kruse D. et al., "Computer use, computer training, and employment: Outcomes among people with spinal cord injuries" *SPINE* 1996, 21/7, 891-896.

for the general population, one reason suggested being that people with spinal cord injury are less likely to have the opportunity to use computers at work.

The study found that computer use was linked to education, age and severity of injury. Employment was also linked to education, as well as the ability to drive a motor vehicle. The ability to use a computer at work enhanced the earning capacity of people with spinal cord injury considerably, and also made it more likely that the person had a full time job. The data would seem to support the conclusion that the higher earnings of people using computers at work relates to their increased productivity. It would then be seen, not just as a means of obtaining employment, but as the consequence of a successful employment outcome. In other words, it would reflect higher productivity on the job.

One criticism of this study is that the analysis does not distinguish sufficiently the experience of paraplegics and quadriplegics. In the case of the latter, there is no information given on the level (and hence severity) of injury. A surprisingly high proportion of participants (89%) were able to dial a telephone without any adaptive devices.

An important Australian study on this issue reports on a survey of 82 people with physical disabilities in Brisbane.¹¹¹ In this study 56% of respondents were employed, 27% were not employed and 15% were students or undertaking voluntary work. The higher employment rate compared to other studies is possibly due to sampling error (the response rate was 28% but this was a self selected group – those who agreed to do the questionnaire). Also the study seems to have an older age group, with most

¹¹¹ Pell S. et al., "Relationship between use of technology and employment rates for people with physical disabilities in Australia: implications for education and training programmes" *Disability and Rehabilitation* 1997, 19/8, 332-338.

being 26-35, whereas the most common age for spinal injury is 15-24.¹¹² This increases the likelihood of their being employed. However the other possibility is that their employment rate is being boosted by increasing involvement in computer-related jobs; this would be likely to be a stronger factor in 1997 than in, say, 1994.

Pell et al. found that most of those who were employed were in information-based jobs, and that 75% of respondents used computers in their work or study. Analysis revealed that only *present level of computer skill* was a significant indicator of employment status. Further:

The significant relationship between employment situation and present, but not prior, levels of computer skill again indicates that respondents are developing skills in using computers while engaged in their present occupation.¹¹³

They conclude:

The level of computer skill and the training of people with physical disabilities were found, using logistic regression analysis, to be significant predictors of employment status and vocational modes...Other significant predictors of employment and vocation were gender and level of education.¹¹⁴

This is of great interest for this research. It supports the view that people who increase their productivity through computer-related skills are more likely to remain employed. While the authors believe their findings are an imperative to increase employment *prospects* through computer training, it is also likely that the results indicate favourable employment *outcomes* for those who can use and develop computer skills on the job.

However this study, like many others, can be criticised for not distinguishing between the various disability types included in the sample. The banner

¹¹² See Australian Injury Prevention Bulletin *op cit.*

¹¹³ Pell et al, *op cit.*, 336.

¹¹⁴ *ibid* 338.

“physical disability” is a very loose one. Even the distinction between those with quadriplegia and those with paraplegia is surely vital in a study of employment experiences.

COMPUTERS AT THE WORKPLACE

Some recent attention has been given in the literature to the application of computer technology for people with disabilities at the workplace.

Langton and Ramseur¹¹⁵ explore the opportunities for introducing assistive technology through the job accommodation provisions in legislation such as the ADA. They summarise the practical steps involved in workplace accommodations:

- ♦ Needs identification
- ♦ Technology assessment
- ♦ Job/Task analysis
- ♦ Problem solving
- ♦ Cost analysis
- ♦ Solution development
- ♦ Implementation
- ♦ Training
- ♦ Follow-up

These steps are detailed further, with guidance from the basic formula: “Job Analysis + Assistive Technology/Accommodation = rehabilitation = productivity”.¹¹⁶

One interesting insight from this article is the point that much mainstream technology can be used for the purposes of assistive technology. They propose the following progression:

¹¹⁵ Langton and Ramseur op cit.

¹¹⁶ ibid 29.

1. Modify or revise the job or task when possible.
2. Use commercially available rehabilitation products.
3. Creative utilisation of commercially available devices.
4. Combine technologies not typically used together.
5. Modify existing commercial devices.
6. Fabricate new devices.¹¹⁷

The authors see hope in the emergence of new, more inclusive technologies, but see a growing role for all involved in the rehabilitation process to make the necessary connections.

An interesting approach to the process of adapting technology to the needs of disabled workers comes from Germany.¹¹⁸ They have developed an assessment system, which is “a process through which work demands are compared with work-related human abilities”.¹¹⁹ A computerised system known as IMBA is linked to a database of technical aids known as REHADAT.

The model used to link “technical aids” (= assistive technology) to workplace needs is interesting. Once the abilities required to undertake a job are described, they are matched against the capacities of the disabled worker. The required abilities may be *existing*, *limited* or *non-existent* in the case of each worker. Technology can then be used in each circumstance: to improve existing abilities, to utilise and support limited abilities, and to substitute for non-existent abilities. The result will be an enablement of work performance, a reduced workload and guaranteed job security.

¹¹⁷ *ibid* 31.

¹¹⁸ Rexrodt C, and Ramsauer F., “A synthesis of a vocational assessment system and an information system of technical aids” *Disability and Rehabilitation* 2000, 22/13-14, 598-603.

¹¹⁹ *ibid* 598.

Data maintained by the Job Accommodation Network (JAN) in the USA was used by Dowler et al. to examine the types of accommodations sought by workers with disabilities.¹²⁰ While a wide range of accommodations was implemented, the highest proportion related to keyboarding and reading from the computer screen. Interestingly 79% of the accommodations involved the purchase of new equipment, rather than alterations to policies, jobs or worksites. Over 65% of accommodations cost less than \$500 (US). Respondents were asked to place a dollar estimate of the benefit received from the accommodation. The median estimated benefit was \$10,000 giving, in the view of the authors, a benefit to cost ratio of \$50 benefit for every \$1 of accommodation cost. It is not known on what basis respondents made such an estimate.

The study by McNeal et al.¹²¹ also sheds light on the types of problems faced by people with disabilities at the workplace and the accommodations made to address these problems. For those with spinal cord injury (including both paraplegics and quadriplegics), 39.8% of problems concerned “using equipment/tools/furniture” followed by “access” (24.3%) and “getting the work done” (10.8%). The study found that 85.7% of the problems nominated by those with spinal cord injury were accommodated. However only 69.5% of these accommodations were deemed to be satisfactory. In some cases the accommodation was approved but was yet to be implemented; if these were subtracted from the total, then 50% of the remaining unsatisfactory accommodations were due to “no solution identified”, 12% due to “employer refusal” and 30% due to the fact that the employee had yet to ask the employer to make the accommodation. Employer ignorance and resistance, combined with employee reticence in asking for accommodations, can thwart

¹²⁰ Dowler D. et al., “Outcomes of reasonable accommodations in the workplace”, Technology and Disability 1996, 5, 345-354.

¹²¹ McNeal et al. (1999) op. cit.

the process by which the legitimate needs of people with disabilities at work are addressed.

Types of accommodations identified in the study were:

- Equipment/furniture/tools 45.1%
- Assistance from others 25.2%
- Job process modifications 11.8%
- Architectural modifications 10.8%
- Other 7.2%

Consistent with previous research, this study showed that 46.2% of accommodations had no cost, a further 33.3% had a cost of less than \$1000. For those accommodations that did involve a cost, payment was not always made by the employer. The breakdown was as follows:

- Employer 58.7%
- Employee 18.1%
- Vocational rehabilitation 16.8%
- Private insurance 2.6%
- Public insurance 2.6%
- Family/friend 0.6%
- Other 0.6%

This is interesting, because it is often assumed that the employer has to meet the cost of all accommodations. Clearly this is not the case. Over 40% of accommodations are provided by parties other than the employer.

Two recent Australian studies have contributed to this area in the literature. In a study by de Jonge a total of 26 people who used computers and assistive

technology at the workplace were interviewed in depth.¹²² Employers and co-workers were also interviewed. The following barriers to the effective use of assistive technology were identified:

Identifying the Right Technology Options

- Unsure of needs
- Unaware of what is technologically possible
- Isolation from others with similar needs
- Unaware of/poor access to resources
- Lack of time to explore options
- Limited trial opportunity

Acquisition of Technology

- Having limited control over decisions
- Delays in obtaining technology
- Lack of technology use in work environment
- Cost of the technology
- Limited funding
- Costs to the employer

Customising and Learning to Use Technology

- Lack of knowledge
- Poor awareness of the issues
- Complexity of the technology
- Relying on trial and error
- Amount of time required
- Lack of time at work
- Costs
- Limitations of trainers
- Isolation of the assistive technology user
- Relying on informal networks

¹²² De Jonge D. et al., "Putting technology to work: Consumer perspectives of assistive technology" Technology for Life: Education, Work and Leisure 1999, ARATA. This is a summary form of her thesis: De Jonge D., Putting Technology to Work: Experiences of People Using Assistive Technology in the Workplace 2001, Master of Philosophy Thesis, University of Queensland.

Using Assistive Technology at Work

- Software incompatibility
- Lack of IT support
- Shared work space
- Unable to work at other work stations
- Need to upgrade existing technology/platforms

For the Assistive Technology User in the Workplace

- Personal discomfort and strain
- Reluctance to advocate for themselves
- Having to deal with issues alone
- Having to initiate requests
- Relying on user knowledge of technology
- Uninformed workplace

This study shows that the process of successful application of computer technology at the workplace for workers with disabilities is fraught with difficulties. Lack of knowledge, lack of advice, employer ignorance, delays, frustrations... hardly a recipe for successful outcomes.

Another Australian study has made a substantial contribution to this issue.¹²³ It uses the Cook and Hussey HAAT model to examine factors that affect the integration of assistive technology at the workplace. They found that user persistence and assertiveness was important, especially in making requests for accommodation. User attitudes and preferences regarding assistive technology were also important, such as the preference for simpler technology.

They found many users lacked knowledge, not just about assistive technology but also about how to get information about it. Some used the

¹²³ Driscoll M. et al., "Factors that prevent or assist the integration of assistive technology into the workplace for people with spinal cord injuries: Perspectives of the users and their employers and co-workers" Journal of Vocational Rehabilitation 2001, 16, 53-66.

Internet to get information, while others preferred to deal with specialists. The findings of other studies, that user involvement in decision-making enhanced success, were confirmed in this study.

Employer attitudes and support were an important part of the environment. All employers in the study felt the cost of assistive technology was outweighed by its gains, including task performance and productivity. But both user's and employer's needs have to be met for a successful outcome to be achieved. However "all employers saw the need for, and value of technology services to offer advice and support, but their awareness of such services was limited".¹²⁴

Other factors noted were flexibility at the workplace, compatibility issues for technology, the availability of back-up methods, a trial period, suitable training and the consideration of future needs.

This is a study brimming with practical insights, limited perhaps only in that it examines "success" stories. This self-confessed limitation means that factors subverting successful integration of assistive technology at the workplace may not have been come into focus.

Interest in assistive technology is growing rapidly. There are several books on assistive technology, more like handbooks than academic treatments of the subject. The first of these was in 1984 by Bowe,¹²⁵ with a steady stream in the 1990s, including Lazzaro,¹²⁶ Flippo¹²⁷ and Gray.¹²⁸ The most substantial remains Cook and Hussey,¹²⁹ while one of the most influential is Scherer.¹³⁰

¹²⁴ *ibid* 62.

¹²⁵ Bowe F., *Personal Computers and Special Needs* 1994, Sybex

¹²⁶ Lazzaro J., *Adaptive Technologies for Learning & Work Environments* 1993, American Library Association, Chicago.

¹²⁷ Flippo K. et al., *Assistive Technology – A Resource Book for School, Work and Community* 1995, Paul H. Brookes, Baltimore.

¹²⁸ Gray D., Qautrano L. and Lieberman M., *Designing and Using Assistive Technology* 1997, Paul H. Brookes, Baltimore.

¹²⁹ Cook and Hussey *op cit*.

SUMMARY – ASSISTIVE TECHNOLOGY

What does assistive technology contribute to our understanding of the employment of people with quadriplegia? It tells us that people with quadriplegia are extensive users of computers and that many of them use computers in their employment. Those who do have more extensive and better paying jobs. The role of computer skills as a means of obtaining employment is identified; the link between computer skills, productivity and career development can also be inferred from recent studies.

Abandonment of assistive technology like computers is a major issue. It can point to inadequacies in the way people with disabilities are provided with such technology, especially the lack of a consumer focus in such a process. Yet again we must contend with a medical approach to a disability issue.

We also recognise that the assistive technology industry is fragmented and dispersed, even in the USA. This has implications for the way in which assistive technology is developed, marketed and supported.

The assistive technology literature provides us with a more detailed understanding of what workplace accommodations are made and the process by which they are identified and financed. Employer resistance and ignorance, combined with employee reluctance to request accommodations, can subvert or limit this process.

When it comes to the practical application of assistive technology at the workplace, this field of study contributes many insights. The task of linking the person, the technology and the workplace is far from simple. Each case will need to be treated on its merits. We learn also that employers have limited knowledge, both of assistive technology options and of where to find

¹³⁰ Scherer M., 2000, op.cit.

out about these options. This is a serious impediment to the application of assistive technology to the needs of people with disabilities in Australia. Unlike in the USA, we have no legislation that strengthens the link between assistive technology and workers with disabilities.

A Framework to Analyse the Employment Process

Our survey of the literature of both established disciplines and new disciplines has highlighted a number of problems. The established disciplines have the tools of analysis with which to address the issue of disability, employment and technology. Yet their approach has at best been selective. We are given a range of sporadic insights rather than developed models or frameworks. Even economics, where more attention has been given to these matters, the recent focus has been on the narrow issue on the incentive effects of social security payments in luring older workers out of the workforce. Earlier, more promising work on issues such as discrimination has not been developed further.

In any regards what insights economics has to offer have ostensibly been quarantined from the other disciplines. Cross-fertilisation of ideas between these disciplines has been rare. We look in vain, for example, for a treatment of *discrimination* that dares to incorporate social, legal and economic perspectives.

The reluctance of the established disciplines to address these issues has opened the door to new disciplines, especially *vocational rehabilitation* and *assistive technology*. Here we find a more direct focus on these issues, with a wealth of studies on different aspects of disability, employment and technology. However that does not solve our problem. Many of the studies from these disciplines are descriptive. They do not develop into models or frameworks. No attempt is made to integrate these insights with those of the established disciplines or even to use some of the techniques and tools of analysis available from them.

How then can we distil from the literature those factors that influence and shape the employment of a person with quadriplegia? This is a key question. Yet what we are given are the raw materials rather than the finished product. To proceed further in this study some way of integrating these disparate insights needs to be developed. A model or framework is required, at least to enable us to locate the operation of the various insights within the employment process for a person with a disability.

The few models that have been developed so far have focused on the person's use of assistive technology, and have sought to integrate human, technological and environmental variables.¹³¹ They are essentially static frameworks, with an engineering or therapy basis. They do not incorporate economic or legal data in any significant way. While they may be useful tools for examining the use of assistive technology, they are inadequate when we focus on the issue of *employment*.

To develop a complete model of the employment process for people with quadriplegia is a task beyond the scope of this study. Indeed, one suspects that a model that explains the process in full, taking into account all of the factors we have so far discussed, will be elusive indefinitely.

The approach taken in this study is far more modest. In Chapter 1 we identified four key transitions or junctions that mark out the employment journey of a person with quadriplegia. These are:

1. The person's decision to enter the workforce.
2. Preparation for work.
3. The employer's decision to employ a person with a disability.
4. The way in which a job becomes a career.

In what follows an attempt is made to locate the insights from the various disciplines and areas of study within this framework. Most studies treat the employment of people with disabilities as a single issue or problem. This framework, by treating the employment of a person with a disability as a *process*, with movement through four clear transition points, gives greater clarity to our understanding of the issue. It will enable us to see which factors are relevant at each of the key junctions. It will also enable us to see which factors are in tension, i.e., which factors are fighting against each other. This will be relevant when we come to evaluate government policies in this area.

A framework such as this allows the incorporation or integration of new insights and studies as they emerge. When a new study tells us, for example, that a person's perception of their disability and the meaning of work affects their employment outcomes, we are able to see at what point in the employment journey this insight operates, and with what other factors it must interact or even contend (such as financial incentives).

The framework is developed in the following pages.

¹³¹ See Scherer 2000 op cit., Cook & Hussey op cit.

1. THE DECISION TO SEEK EMPLOYMENT

Positive Influences	Negative Influences
Expected wage income Confidence Past employment experience Available training and support Desire for social contact Positive role models Government financial bonus Available job search assistance Anti-discrimination legislation Personal adjustment to disability Positive work ethic Possibility of re-employment	Likely loss of pension Likely loss of benefits Availability of transport Cost of transport High marginal tax rates Severity of disability Type of disability Being older Need for attendant care Pain
DESIRED OUTCOME	
Person decides to seek paid employment	
UNDESIRED OUTCOME	
Person withdraws from labour market	

We can note that the costs of such a decision are probably easier to quantify than the likely gains. Nevertheless, studies show that most people with disabilities have a strong desire to work. Not to do so condemns them to the sidelines of a society where the material showcase is constantly dangled in front of them.

Positive inducements include the person's sense of their own productivity or potential productivity, their anticipated income and their perceived likelihood of obtaining suitable employment. Contrary factors include anticipated loss of benefits, lack of transport and factors associated with their disability (such as pain).

2. PREPARATION

Positive Influences	Negative Influences
Motivation Job seeking skills Computer skills Other relevant skills Training Good vocational preparation Suitable career counselling Tertiary education	Restricted schooling Disfigurement Poor speech High level of disability Poor vocational preparation Poor career counselling Labour market segmentation
DESIRED OUTCOME	
Maximise job relevant skills and seek suitable job	
UNDESIRED OUTCOME	
Person unable to find suitable employment targets, or is misdirected to unsuitable employment options.	

The outcome of this process will be a degree of job readiness and a matching of this to job opportunities. Failure can arise when the person's disabilities and other factors reduce target employment opportunities and income prospects; this may cause the individual to revise their decision to enter the workforce. Failure can also arise when the job placement agency directs the person to a job that is not suited to their capabilities, interests or expectations. Many studies in vocational rehabilitation stop at this point. However we know that job readiness does not, on its own, lead to a job.

3. THE EMPLOYER'S DECISION TO EMPLOY A PERSON WITH A DISABILITY

Positive Influences	Negative Influences
Public image Avoid penalties Up front incentives Wage subsidies Equipment subsidies Large firm Favourable leadership Flexibility of jobs Previous contact with people with a disability Retaining an injured worker Person's qualifications Computer proficiency Low unemployment Marketing prowess of employment agency	Perceived hassle and uncertainty Fear of low productivity Concerns re cost of accommodations Concerns about extra management time and indirect costs Small firm Rigid job structure Statistical Discrimination Prejudice Employee disfigurement Fear of being stuck with employee Cost pressures High unemployment Lack of awareness of supports/programs Fears re safety, accidents and compensation
DESIRED OUTCOME	
Employer employs person with a disability	
UNDESIRED OUTCOME	
Employer decides not to employ a person with a disability	

The employer's process of deciding to employ a person with a disability is a finely balanced one. The starting point is a negative one. The employer must usually be persuaded to embark on such an endeavour. It is not self evident to most employers that taking on a person with a disability will be in the interests of the business. His or her decision is vulnerable to the impact of various policies and circumstances.

4. FROM JOB TO CAREER

Positive Influences	Negative Influences
Productivity of employee Flexible job design Co-worker acceptance Computer skills Good public response Computer support and advice Willingness of employee to seek accommodations	Organisational restructuring Changes in technology Deterioration in health and function Monopsonistic discrimination Discrimination in wages or promotions Co:worker prejudice Absences from work for medical treatment Resistance by employer to requests for accommodation
DESIRED OUTCOME	
Job grows in responsibility and income	
UNDESIRED OUTCOME	
Job is sidelined or terminated	

These factors determine whether or not the job grows in responsibility and income for the person involved. By this time government subsidies and bonuses have passed. It comes down to the productivity of the employee, their integration into the work setting and the flexibility of both workplace and employee to changes.

THE ROLE OF COMPUTERS

What early observations can be made about the possible role of computer technology as the person with quadriplegia confronts these frontiers in their employment journey?

For the individual contemplating entry into the workforce, computer skills may increase his or her perception of their own potential productivity and employability. They will also serve to elevate the person's anticipated wage horizons, thus countering any perceived loss of benefits.

In the process of job preparation, computer skills will be directly relevant to the person's employability and may give the individual a means for other skills, including professional skills, to be developed.

The employer is likely to see computer skills as a guarantee of the employee's productivity and thus be more likely to consider their employment. These skills will provide a bridge between the individual and the workplace.

In a maturing work relationship, the individual's computer skills are likely to provide the means for increased productivity and career potential. This in turn will serve to encourage co-worker support and acceptance.

There are many influences and issues that affect the employment journey of a person with quadriplegia. No single issue is likely to dominate. We can note that computers can have a role, perhaps even a decisive role in some cases, in each of these junctions. But other factors will obviously be involved also.

Yet to make such assertions is to presume that a person with quadriplegia will be able to use a computer effectively and productively. Their upper limb impairment will in many cases prevent them from using a standard computer keyboard and mouse. The employability of this group hinges on

the belief that assistive technology can enable them to be proficient computer users in a work environment. How will this happen?

Further, we have noted in the literature of assistive technology that ignorance and confusion abound when it comes to getting information about computer-related assistive technology, purchasing the technology, integrating it into a work setting, customising and upgrading it, and receiving training and support in its use. These uncertainties affect the individual, rehabilitation professionals, therapists and employers.

It is therefore appropriate at this stage to examine the assistive technology options that would enable a person with quadriplegia to use a computer. We will also explore the specialised services that will be required in the selection and customisation of such technology, and in training and supporting users and their employers in its use. To this task we now turn.

CHAPTER FOUR

COMPUTER ACCESS TECHNOLOGY FOR PEOPLE WITH QUADRIPLEGIA

Background

It did not take long in the personal computer era for both the potential and the frustration of this new technology for people with disabilities to be identified. As Bowe observed: "Today computers are not set up to accommodate the input and output devices that many disabled people require" and he expressed the fear: "So in technology we have repeated the pattern we followed in architecture: we have designed for people in full possession of their faculties, only to discover later that we had inadvertently excluded large numbers of disabled individuals".¹

In 1984 meetings were held at the White House between representatives of government, the computer industry and disabled consumers. The problem of computer access for people with disabilities was recognised and a process set in train whereby manufacturers were to be given information about specific problems faced by this group. In 1988 the TRACE Center at Madison, Wisconsin, who coordinated the work of the task force, made available a document, the aim of which was "to provide an awareness of the different types of problems, as well as design recommendations for increasing the accessibility of new computers".² It is a thoughtful catalogue

¹ Bowe F., "Making computers accessible to disabled people" *Technology Review* 1987, Jan, 52, 56.

² TRACE Centre, *Considerations in the Design of Computers to Increase their Accessibility by Persons with Disabilities*, 1988 May, Version 4.2, downloaded from <http://trace.wisc.edu/docs/considerations/consider.txt> on 16/2/02.

of mainly simple enhancements that would make standard computers more accessible to people with disabilities.

Two matters stand out regarding the TRACE list. First, the response from computer manufacturers was basically zero. One of the reasons was that the facilities required were the domain of the computer operating system, rather than the computer hardware. Microsoft was apparently not part of the task force.

Second, by sheer tenacity the TRACE Centre has succeeded in having virtually all of these recommendations included on every new consumer level computer. Their amazing success began with the *Rehabilitation Act Amendments of 1986*, which contained a small section called "Electronic Equipment Accessibility". Regulations were published pursuant to Section 508 in 1988; these contained essentially all of the TRACE suggestions.³ *Apple* had incorporated some of them before 1990; *Access DOS* and *Access Pack for Windows* became available in the early 1990s. Finally these and additional features have been included in all of the *Windows* operating systems since *Windows 95*. In fact Bill Gates has become a keen supporter of disability access: "The opportunity that innovative hardware and software offers to make the computer essentially the greatest accessibility aid ever is very exciting".⁴

There is now a vast range of computer access equipment available for people with all types of disability. These include specialised input devices, software and techniques. There are also specialised services available to facilitate the use of this technology. Although some texts have appeared to cover this fast

³ For an industry response at the time, see Ladner R., "Computer accessibility for Federal workers: It's the law" *Communications of the ACM* 1989, 32/8, Aug, 952-956.

⁴ Gates B., "The accessibility issue" *Communique* 1998, April, 64.

changing field,⁵ the best sources of information come through the Internet and through conference papers (such as the ARATA conferences held every two years in Australia, or the RESNA and *Closing the Gap* conferences held each year in the USA). Occasionally the topic of computer access for people with disabilities is mentioned in the general computer press⁶, even in Australia.⁷

There has been one Australian study that covered the use of assistive technology in relation to computer access. Pell's study, of 82 people with physical disabilities, found that 60% were computer users. However only 15 used assistive devices to access their computer; half of these said they couldn't operate the computer without these devices. The authors conclude: "the minimal use of assistive technology by people with physical disabilities is of great concern and needs to be addressed... many have not and are not taking full advantage of the opportunities presented by technology".⁸

In this study we will be focusing on our target group and therefore confining attention to equipment suited to people with quadriplegia. People with this level of disability are generally unable to use a standard keyboard and mouse, at least to a level of proficiency adequate for many work requirements.

We will begin by outlining the range of alternative text entry systems and methods, and cursor control options available for this group. However it is

⁵ Such as Anson D., Alternative Computer Access – A Guide to Selection 1997, F.A. Davis, Philadelphia.

⁶ For example, Lazzaro J., "Opening doors for the disabled" Byte 1990, Aug, 258-268; Schwerdtfeger R., "Making the GUI talk" Byte 1991, Dec, 118-128; Wagner C., "Enabling the disabled" The Futurist 1992, May-June, 29-32; Lazzaro J., "Computers for the disabled" Byte 1993, Jun, 59-64; Prisine J., "Empowering physically challenged users" PC Magazine 1994, Jan 11, 261-263.

⁷ Smith G., "Computers as hands and voice and eyes and ears" Your Computer 1993, June, 76-78.

⁸ Pell S. et al., "Use of technology by people with physical disabilities in Australia" Disability and Rehabilitation 1999, 21/2, 56-60.

important to note that determination of an individual's computer access needs requires more than simply identifying a single item of technology. Commonly items of hardware and software are used in conjunction with each other to generate access pathways for the individuals concerned. Solutions will therefore involve strategic combinations of the items discussed below.

Further, there will usually be more than one computer access solution available for each individual. The alternatives will have varying strengths or weaknesses in relation to the purposes for which the individual will use the computer system. For example, a solution that is suitable for home use may not be the best option for a person in a workplace setting. Identification of appropriate computer access options will also depend on the nature of the work the person is undertaking. Word processing will emphasise keyboard use or some alternative text entry method, whereas graphics will emphasise mouse functions. Desktop publishing will require both skills. Entering data in a spreadsheet will often require access to the numeric keypad. The type of work to be undertaken will have a considerable bearing on the suitability of various computer input options.

In modern workplaces the user must also contend with idiosyncratic networks that often are hostile to the introduction of alien devices or software. Compatibility becomes a major issue.

Sometimes solutions will involve a trade-off between comfort and efficiency. Individual preferences should feature prominently in the selection of the most appropriate access for the person concerned.

As well as outlining the available technology options, this chapter will also examine the types of services often required for people with quadriplegia to enable them to gain maximum advantage from the computer access systems.

These services will include assessments, customisation, training and technical support.

Text input alternatives

Entering text is a primary requirement in most computer tasks in a workplace. The problems confronting our group can be considerable. Many of them are unable to isolate their fingers sufficiently to type on a standard keyboard. Some cannot reach all the keys. Most are unable to press more than one key simultaneously. For many their rate of typing is too slow for productive text input in a work setting.

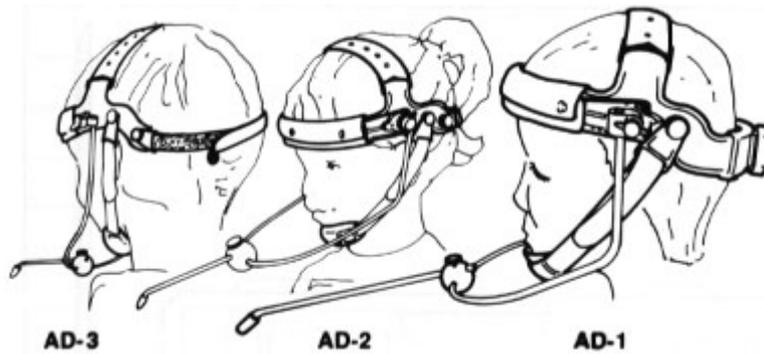
The basic alternatives available are, first, to empower the person to use a standard keyboard; second, to modify the standard keyboard in some way; third, to use an alternative keyboard; and finally, to by-pass the keyboard altogether in favour of another method of text entry.

USING THE STANDARD KEYBOARD

► Splints and Pointers

At the simplest level, a person with quadriplegia may be able to input text by means of a splint attached to the finger or hand, or by means of a head pointer or mouth stick. Any of these methods will enable the individual to use a standard keyboard. For those using a hand or finger splint, some benefit could usually be obtained from the use of a more compact keyboard (such as the *Cherry Compact keyboard* or the *Datalux keyboard* – see later section).

For those using a head pointer or mouth stick, a keyboard such as the *Datalux*, which has a concave shape that makes the keys equidistant from the user, could be helpful. This can reduce neck strain.



Zygo Head Pointer



Quadriplegic typing with a hand splint

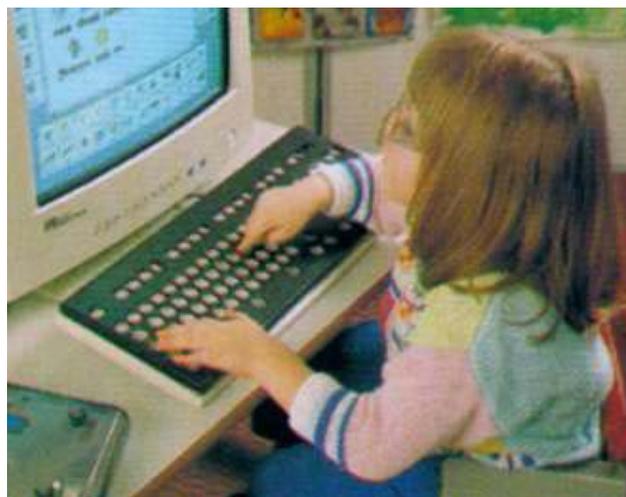
This method of input can be tiring and uncomfortable for the user. Some users require assistance to attach and remove the splint. It has the advantage of portability, in that it can be used on any computer system.

It is also a slow method of text entry. Some improvement to the speed of text entry can be obtained through *rate enhancement software* (with features such as word prediction and abbreviation expansion – see later section). The judicious use of features available on standard software such as *Microsoft Word* can also be used to advantage (such as *Styles* and *Auto text*).

► **Keyguards**

Sometimes use of a standard keyboard can be salvaged by attaching a keyguard to the keyboard. Keyguards are made from plastic or metal with holes cut out above the keys. They allow people with hand tremor (as in some forms of cerebral palsy) to stabilise their hands on the surface of the guard, without interfering with the other keys, as they make their selection. They also enable such users to press individual keys without disturbing the surrounding keys. Keyguards can be custom made for most keyboards and are available as options on some specialised keyboards.

Keyguards require no software and thus do not interfere with workplace computer systems or networks.



Young girl using a metal keyguard

► MINI KEYBOARDS

Sometimes very small keyboards can be used to advantage. For people with high level spinal injuries, sometimes quite effective text input speeds can be achieved with a long mouth stick and a mini keyboard. For those with spastic quadriplegia that greatly restricts their range of movement, a mini keyboard can again be useful.



TASH Win Mini keyboard

The *TASH Win Mini keyboard* is available in a “frequency of use” layout as an alternative to the standard QWERTY layout. This further reduces the range of movement required by the user. The keyboard has a soft-touch membrane rather than keys that need to be pressed. The keyboard also can be used to control mouse functions.

However this device does not comply with recent Australian standards for electrical interference and is thus unable to be sold here.

► COMPACT KEYBOARDS

These keyboards are about the size of the keyboard on a notebook computer. They reduce the range of movement required by a user. They are much less expensive than the *TASH Mini keyboard*. They are especially useful for those who type with one hand.



Cherry Compact keyboard



Datalux keyboard

As mentioned earlier, the shape of this model *Datalux* keyboard helps to make the keys equidistant from the user with a mouth stick or head pointer.

A further advantage of a mini or compact keyboard is that they allow a more efficient layout of desktop items. For example, they may allow a pointing device such as a trackball to be placed within easier reach.

► **Numeric Pads**

For those users who may require access to a numeric pad, the use of a compact keyboard can result in a problem. Although these keyboards have a row of numbers along the top, some people need access to a proper numeric

pad. These can be supplied as separate units, to be used in conjunction with a compact keyboard.



Separate numeric pad

Several keys on the *Cherry Numeric Pad* are programmable. This means one key can be programmed as a reboot key (CTRL-ALT-DEL).

These numeric pads operate through the keyboard port of the computer and do not require any software. Earlier numeric pads operated through the serial port and did require drivers.

► LARGE KEY KEYBOARDS

The *BigKeys Keyboard* began its life as a keyboard for kids. But its application to the needs of people with disabilities was quickly identified, so that it is now directed at that market. It has keys that are four times the size of those on a standard keyboard. It is available in QWERTY or ABC layout. Keys can be black on white, white on black or coloured.



Big Keys LX keyboard

In the case of upper limb tremor, these keyboards can be an alternative to using a keyguard on a standard keyboard. The result is often a faster rate of text input. Key guards are also available for these devices.

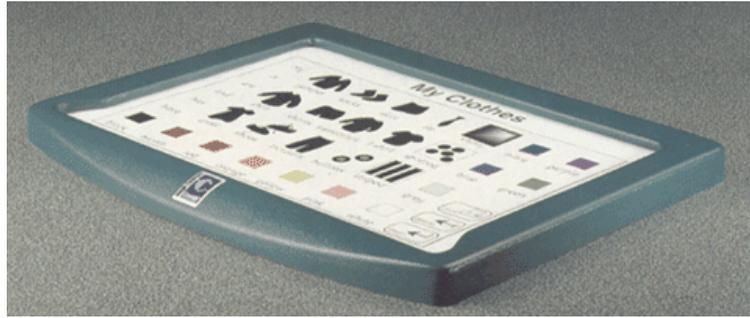
► CUSTOMISABLE KEYBOARDS

Some keyboards use a flat membrane that allows alternative layouts to be installed. The *Intellikeys* and the *Concept Keyboard* are examples of such keyboards. In the case of the *Intellikeys* various overlays are provided with the unit, but customised overlays can be designed by the user using special software. One of the overlays is a Setup Overlay, which allows features such as keyboard sensitivity and key repeat rate to be customised for the user.

A major advantage of a customisable keyboard such as the *Intellikeys* is that the user can drag their hands across the board without activating any keys; when they are in the desired position they can then push on the chosen key. One disadvantage is that the keyboard is large, and users must cover a lot of space to reach all of the keys. They are devices suited to certain users with cerebral palsy.



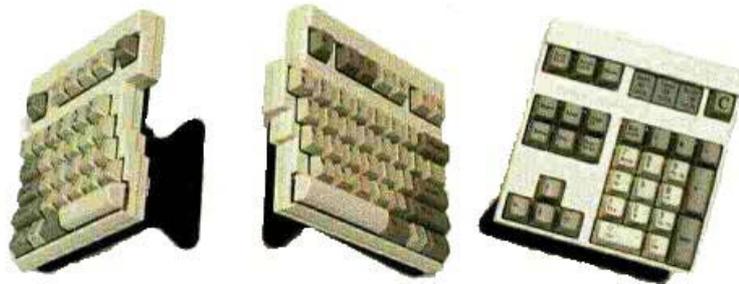
Intellikeys keyboard



Concept keyboard

► ADJUSTABLE KEYBOARDS

These would only rarely be used by people with quadriplegia. The left and right sections of the keyboard can be adjusted separately, thus allowing the two (or three) parts to be angled differently. Examples include the *Comfort* keyboard and the *Kinesis* keyboard.



Comfort Keyboard ErgoMagic



Kinesis Maxim Keyboard

► WIRELESS KEYBOARDS

Wireless keyboards allow additional flexibility in positioning. They also avoid the need to have a cable between the user and the computer. Several commercial models are available.



Logitech Cordless Pro with Cordless Mouse



Interlink RF Keyboard

However unless a wireless pointing device is also used, a true wireless input system will not be achieved (the wireless mouse devices that usually come with wireless keyboards are not suitable for most people with quadriplegia).

These wireless devices also require software and this can add complexity to workplace computer environments.

► PROGRAMMABLE KEYBOARDS

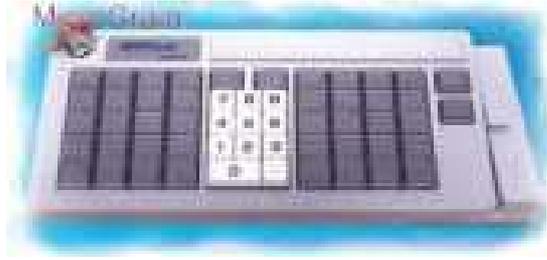
These keyboards have the facility for each key to be programmed with single characters, strings of characters (such as sentences and paragraphs) and key combinations. This means frequently used text can be accessed with a single keystroke. It also means key combinations, such as often used in workplace systems, can be accessed simply.

As these keyboards store the text strings in the keyboard, without any need for special software, they can be used with any computer system. The main disadvantage of the larger keyboards with programmable keys (such as the *VersaKey*) is that the user must be able to access a wider area in order to reach all of the keys.

Keyboards and keypads designed for use in “point of sale” situations can sometimes be adapted for the use by people with special needs.



X-Keys Programmable Keypad



POS 55 Key Programmable Keyboard



VersaKey Programmable Keyboard

► KEYBOARDS WITH BUILT-IN POINTING DEVICES

It can be useful and convenient to have keyboards and pointing devices combined in the one unit. Much depends on the suitability of the pointing device for the person concerned.



Cherry Keyboard with Built-In Trackball



Datalux Keyboard with Built-in Touch Pad

Sometimes the user will prefer the sheer convenience of such an arrangement, even though the built-in pointing device may not be optimal for them in terms of efficiency.

► **NOTETAKER KEYBOARDS**

The *AlphaSmart 3000* device functions as a keyboard when attached to the computer, but can also function as a separate note-taking device when unplugged. This device has its own four-line LCD display and runs on AA batteries for up to 300 hours. Up to 100 pages of text can be stored in the device, and text can be transferred to and from a host computer very easily.

Such a dual purpose device can be of great benefit to a person with quadriplegia. It can be used by the person themselves when away from their base. It is cheaper and easier to use than a notebook computer. Students can type on the device themselves, or else arrange for a scribe to record notes on the *AlphaSmart* rather than by hand. No software is required, so this device can be used in any situation on virtually any computer.



AlphaSmart 3000

► OTHER PHYSICAL KEYBOARDS

The *Magic Touch keyboard* uses a pen device that is used to touch the required keys. No pressing is required, just the softest touch. While it is an expensive device, it is ideal in certain situations.



Magic Touch Keyboard

The *LUCY keyboard* is accessed by the user by way of a laser pen that is typically attached to a headband or cap. The keyboard itself, which is usually placed beside the monitor, has small receptors that pick up the laser signals. The keyboard inputs are then transferred instantly to the host computer. No software is required.

The keys on the *LUCY* are arranged in a *frequency of use* format. This reduces the amount of head movement required by the user. The size of the device (similar to that of a monitor) means it can be placed further away from the user, thus further reducing the amount of head movement required.



1	!	2	"	3	£	4	\$	5	%	6	^	7	&	8	*	9	(0)	Esc
j	b	f	r	u	v	x	*	-	+	Fun										
k	c	o	e	h	w	y	7	Home	8	↑	9	PgUp	...							
p	l	a	□	t	s	z	4	←	5	→	...									
q	m	d	n	i	g	←	1	End	2	↓	3	PgDn	Mac							
←	↔		<	>	?	;	:	-	=	+	~		{	}	@	~	']	'	#
Shift	Caps	Ctrl	Alt	Scf	Bsp	Ins	Del	Num	Alt	Gr	Rep									
∞	○	△	□	○	♥	○	□	△	○	∞										

The LUCY keyboard in use, and a closer look at its layout.

In some cases the use of even a modified keyboard does not enable the person to enter text productively. Alternative text entry methods must be

sought in order to achieve the desired results. However it is the case that the further we move away from the mainstream, the greater is the likelihood of incompatibilities with typical office systems and networks. As it is usually the most severely disabled persons who require such methods, then we note that this group is the most likely to require computer input methods that are not compatible with workplace computer environments.

► ON-SCREEN KEYBOARDS

For a person whose relative strength is in controlling the cursor, the option of an on-screen keyboard can be considered. This software places an image of a keyboard on the screen. The user moves the cursor over the required letter in order to type.

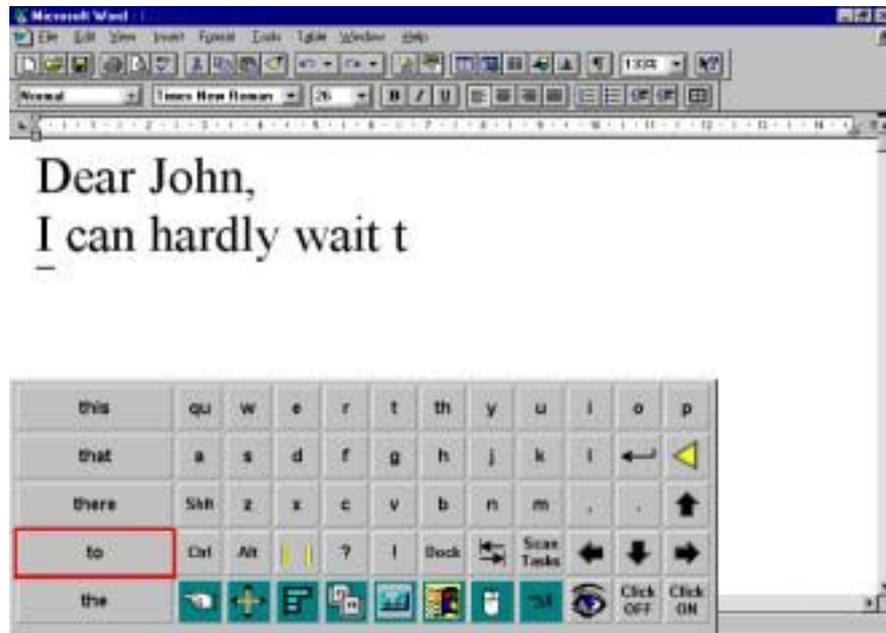
There are some advantages of on-screen keyboards. The software usually allows the user to choose from a variety of keyboards and to customise their own keyboards. The keyboard image can be easily resized and moved.

Many on-screen keyboard programs come with word prediction features and also a “dwell” feature – activating a click automatically after a user-defined period of time (say, 1 second). This means the user does not have to generate a “click” manually in order to select letters.

One of the problems with an on-screen keyboard is that it obscures a sizeable section of the display. To avoid this problem it is sometimes necessary to make the keyboard smaller, but this makes it more difficult to use. People with quadriplegia are usually in a wheelchair, and this means they must sit further back from the display than would a non-disabled user. These problems can be overcome in part by using a larger monitor, two monitors or a monitor arm (to bring the monitor closer).

These software keyboards can conflict with workplace systems and this may limit their usefulness in certain settings.

Examples of popular on-screen keyboards are *WiVik*, *My-T-Mouse* and *Hands Off!*



Hands Off! On Screen Keyboard



My-T-Mouse On Screen Keyboard



WiVik On Screen Keyboard

► RATE ENHANCEMENT SOFTWARE

The process of text entry can be accelerated in some cases by the use of rate enhancement software. These programs can accelerate a person's rate of text input through another method. For example, if a person could type slowly with a *Big Keys* keyboard, but not fast enough for work tasks, then the person's typing speed could be increased with rate enhancement software. These often have a number of features, including:

- ♦ Word prediction where a list of possible completed words is shown and revised as each letter is typed by the user. Sometimes word prediction can predict the *next* word instead of or in addition to the word currently being typed. While word prediction will reduce the number of keystrokes required, the actual gain in typing speed may be less, as the user must spend time examining the suggested word list.
- ♦ Abbreviation expansion where typing a couple of letters will expand into a whole word or sentence, as previously stored by the user. Note that similar features are available in standard programs such as *Microsoft Word*.
- ♦ Endings where some programs facilitate the completion of core word with appropriate endings (e.g., plurals).



Co:Writer

► ACCESSIBILITY OPTIONS

Modern operating systems have built in options to assist people with disabilities. Some of these are relevant for text entry by people with quadriplegia. For example, *Windows 98, Me, 2000* and *XP* have Accessibility options that are accessed via the Control Panel. Some of the features relevant to people with quadriplegia are as follows:

Sticky Keys allows the user to type combinations of modifier keys (CTRL, SHIFT and ALT) in sequence rather than simultaneously. Before the advent of such software the modifier keys were held in place with mechanical latches.

Filter Keys is a facility that ignores brief or repeated keystrokes. The Key Repeat function can be turned off completely through this facility.

► SPEECH RECOGNITION

Over the last decade speech recognition has emerged as a vital tool for many people with significant disabilities. For those with quadriplegia resulting from spinal cord injuries in particular, speech recognition has provided a relatively comfortable and efficient method of text entry. People with disabilities have been one of the main users of this technology since its inception.

Earlier speech recognition systems required a computer well in advance of those used by average consumers. Speech recognition itself was expensive, with early versions of *Dragon Dictate* costing over A\$8,000. Training requirements were substantial and reliability was not particularly high.

The increasing power of personal computers, together with the marketing of speech recognition as a general purpose application, meant that prices fell at the same time as performance increased. These first generation systems were still *discrete speech* systems – users had to enunciate each word clearly, with a space between each word. Not only was the *staccato* speech pattern distracting, but it also caused throat problems for some users.

Another problem with these earlier systems was that corrections had to be made virtually as errors occurred. This again was distracting and increased the cognitive overheads required by these systems.

A major Australian study of people with disabilities who used speech recognition systems was undertaken by Smith in 1996-7.⁹ Four factors were identified as determining the success of a person's usage of speech recognition.

1. Gender: males had greater success than females.

⁹ Smith G., "The Impact of Speech Recognition on People with Disabilities", National Disability Research Agenda Report No. 1, 1997, Department of Health and Family Services, AGPS, Canberra, 1-2. The full report is available at www.abilitytech.com.au/research.

2. Computer Experience: those with previous computer experience were almost twice as likely to have a positive outcome than those without previous experience.
3. Expectations: those with over-inflated expectations of how the system would work were disappointed when they first used the system. They subsequently were much less likely to have successful outcomes.
4. Training: both the quantity and perceived quality of the training received had a strong bearing on the users' eventual success with the system.

In 1997 the first *continuous speech* systems were released. These have steadily improved since that time, taking advantage of the faster processors and larger memory capacity of modern computer systems. Their cost has reduced to just a few hundred dollars. Importantly they have features such as *continuous speech* (no pauses required between words) and *natural language commands* (such as "Make the previous paragraph bold"). Training periods are reduced to as little as 5 minutes. Accuracy out of the box is between 85 and 90% for most people.¹⁰

Many people with quadriplegia are unable to attach and remove a standard headset. They will depend on others for this task, thus reducing their independence. Certain models of desktop microphone can be used, but the gain in convenience will be offset by a reduction in accuracy.

¹⁰ See Smith G. and Berryman M., "Speech Recognition: Possibilities and Limitations" Proceedings – Australian Rehabilitation and Assistive Technology Association 2001 Conference, 2001.

► TEXT INPUT VIA SWITCH

People with very severe disabilities will have to resort to a method of text entry based on the operation of a single switch. There is available an enormous variety of switches, giving people with the capacity to move only a small muscle or eyelid an opportunity to control a computer. Switches are also available that are activated by breath (“sip and puff”) or by changes in the person’s skin (like a lie-detector). One recent switch involves utilising a camera to focus on a particular part of a person’s body, to detect movement in a most non-invasive manner.

Several of the more common switches are shown below:



Jellybean switches



Wand switch

A single switch can be used to control a computer in one of two main ways. First, direct control can be obtained through a system of *Morse Code*. Training requirements are high, but text entry speeds of up to 30 words per minutes have been reported.¹¹

Second, the person can make their selection from options that are scanned in sequence; when the desired letter or command is highlighted, they activate a switch to make their selection. This is an indirect method of text entry. One such program is *Discover:Kenx* from Don Johnston Inc. It presents rows of letters first; when the user selects the row containing the letter they are seeking, the scan moves across the row in groups of three letters. Again a choice is made of the group containing the desired letter, after which the individual letters are scanned, and the user makes his or her final choice. The scanning speed can be customised for each user. These systems take a long time to explain but actually work very effectively in practice. They are slower than direct methods, but a boon to those who have no other option.

Recent problems with the *Discover:Switch* illustrate the difficulties faced by people with disabilities in their dependence on assistive technology. The manufacturers have run into major problems in making the drivers (software) for this device compatible with *Windows*. The problem first emerged with *Windows 98*, but has persisted with *Windows Me*, *Windows 2000* and now *Windows XP*. This range of products has also been extremely slow to introduce USB versions of their products.

¹¹ See Anson op cit, Chapter 15, 129-136, and DeRuyter F., "Using encoded input strategies to facilitate computer and communication access for individuals with physical disabilities", Topics in Stroke Rehabilitation 2000, 7/1, 77-82.

Cursor Control Options

There is a heavy emphasis on mouse functions in modern computer activity. The graphical user interface has been built on the assumption that the user will be able to point and click with a mouse device.

But, as Anson notes, there is more to mouse usage than moving the cursor:

To be able to use the mouse effectively, the client must be able to move the mouse pointer accurately across the screen, produce clicks and double-clicks, and drag items (i.e., move the mouse while holding down a button). On MS-DOS or Windows-based computers, mouse use implies the ability to click either the right or left mouse button on demand.¹²

Most people with quadriplegia do not have the dexterity to use a standard mouse device. Many have problems clicking the mouse button at all, let alone double-clicking or dragging.

Available options include, first, modifying the standard mouse; second, using an alternative mouse device; and third, using a different method to perform the functions that would normally be performed by a mouse.

We can note that USB mouse devices offer many benefits for people with special needs. This appears to be a more stable and universal platform for mouse devices, compared with serial and PS/2 systems. The same USB device will often work on *Windows* and *Macintosh* environments. Further, USB devices can be removed or connected without the need to re-boot the computer, thus simplifying the process where a person with special devices has to share a computer with another person.

¹² Anson D., op cit., 45.

► USING A STANDARD MOUSE

Many quadriplegics prefer to use a standard mouse. Sometimes they use both hands in the process. In many cases this preference is based on a desire to use as little “special” equipment as possible.

A distinction needs to be made between the process of moving a mouse and that of clicking one of its buttons. Some people can move the mouse but cannot click the buttons. One way around this is to modify the mouse to incorporate a switch socket: a suitable switch can then be attached for the person to use, instead of having to click the typically small and awkwardly placed buttons on standard mouse devices.

However this does not solve the problem of *drag* functions (where a person normally would hold down the left mouse button while moving the mouse at the same time). Some users ignore this function. Others will need to consider alternative mouse devices.

► TRACKBALLS

A trackball is essentially an upside-down mouse. The user rolls the ball while the device itself remains stationary. Using a trackball requires less dexterity than using a mouse. In some cases a trackball can be controlled with the back of the hand, elbow, chin or foot, as well as by a pointing stick.

Trackballs vary in the size of the ball and also according to their capacity for customising button functions. In the case of a standard two-button trackball, both buttons are required for use in the *Windows* operating environment. The user is able to switch the left and right button functions. In the *Macintosh* environment, the second button can be assigned to a different function, such as Double Click or Drag-Lock.



MacAlly Two-Button Trackball

The *MacAlly* trackball has the buttons located on a different plane to the ball. This reduces the likelihood of the ball being bumped (and the cursor moved) while the user is attempting to click one of the buttons. However some users will find the location of the buttons too difficult to access.

Another popular trackball is the *PC-TRAC*. It has a similar upward slope to the *MacAlly*, but in this case the large buttons are on the same plane as the ball. This design is a favourite of those with quadriplegia who click the buttons with the side of their hand. The *PC-TRAC* also has a built-in drag-lock button, located at the back-top of the device. The trackball requires no software, so the drag-lock feature is available to a user on any operating system. This can be an important consideration in an office environment.



PC-TRAC Trackball

The *Kensington* trackballs are the most popular of the programmable trackballs. They have four buttons, each of which can be assigned functions such as Left Click, Right Click, Double-Click and Drag-Lock. Software called *MouseWorks* is required in order to effect these changes. The buttons on the *Kensington* trackballs are soft touch.

The *MouseWorks* software has been troublesome, with many incompatibilities evident in recent years. The drivers have undergone many revisions. However the latest USB drivers appear to be more stable.



Kensington Turbo Mouse Trackball

Sometimes a user with ataxic or jerky movements can spin the trackball unintentionally, sending the cursor rocketing across the screen. Sometimes with the *Kensington* trackballs the ball itself can be accidentally flicked out of its socket, leading to some local excitement (and mild terror).

With devices such as trackballs careful attention should be paid to the speed of the cursor. This feature, together with features such as double-click speed, can be set within the *Windows* Control Panel.

If a person can roll the ball but not select the buttons, modifications can be made to install a switch socket for one or any number of the button

functions. This enables the person to use an external switch instead of the buttons.

One specialised trackball, the *Penny & Giles Trackball Plus*, allows cursor speed to be set from the device itself. It also has built-in drag and double-click buttons, plus a facility for an optional switch box that allows switches to be used instead of buttons for any function.

Perspex guards can be made for virtually any trackball. These allow people to access the ball or buttons without performing unintended other functions.



Penny & Giles Rollerball

► JOYSTICKS

A joystick can be used as a mouse device. There are a number of ways in which this can be achieved. One is to use software called *Joystick to Mouse*. This enables a recreational joystick plugged into the games port on the computer to function as a mouse device. However the software can have a complex interaction with other software, resulting in diminished reliability. Another difficulty is that contemporary joysticks are large and awkward for people with impaired hand function to use. They also have small buttons that are difficult to access.

In addition many modern computers and virtually all notebook computers do not have a games port. A simpler solution is available through the USB connection now commonplace on personal computers.

One recent product has a joystick shape but is actually more like a mouse. The *Renaissance Mouse* rolls around on the desk like a mouse, but has a handle like a joystick.



Renaissance Mouse

One Australian company has modified an industrial joystick and adapted it for use as a computer pointing device. It is called the *Joystick Mouse*.



Joystick Mouse

A very comprehensive solution is available in the *Penny & Giles Joystick Plus*. This has buttons for left and right click, double-click and drag lock. It has another button to control the cursor speed through a cycle of five speeds.

The motion of the joystick is such that there is a lag between the joystick movement and the cursor movement, with plenty of free play on the joystick. Alternative handles are available, included a T-bar and a soft yellow ball (the gripping of which can stabilise the hand of certain people with conditions like cerebral palsy).



Penny & Giles Joystick Plus

► TOUCH PADS

These devices are now standard on most notebook computers. They are also available as separate input devices. Very little movement is required, although the user needs to be able to isolate a finger. Some models have a stylus that can be attached to a mouth stick.



Cirque Touch Pads

► MOUTH-CONTROLLED POINTING DEVICES

For many people with quadriplegia it is easier and more comfortable to undertake mouse functions with a device they can control with their mouth. Clicking can be achieved through a sip and puff switch, or else through software that activates a click automatically after a set period (see later).

Examples of this technology are the *QuadJoy*, *Jouse* and *Lipstick*.



QuadJoy



Jouse

A particular advantage of this method of cursor control is that nothing is attached to the user. This freedom is enjoyed by many with quadriplegia. They also work well in conjunction with an on-screen keyboard.

► SYSTEMS BASED ON HEAD CONTROL

There are a number of cursor control systems that rely on head movements. Usually an infrared emitter/receiver is connected to the computer's serial or USB port, and then placed on top of the monitor. The user then wears a headset or else places a small reflector dot (about the size of a piece of confetti) on their glasses or face. Head movements are then translated into cursor movements on the screen.

Clicking can be achieved through an external switch or by using software that automatically activates a click after a set period. Often an on-screen keyboard is used in conjunction with these systems. Popular examples are *HeadMouse*, *HeadMaster*, *HeadWay* and *trackIR AT*.



track IR



Headway



HeadMaster



HeadMouse

► OTHER HARDWARE OPTIONS

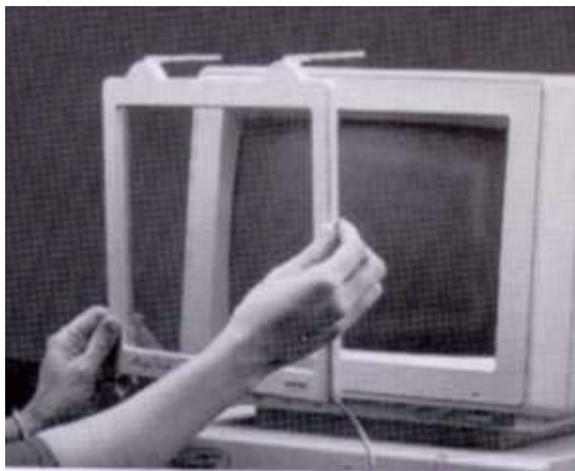
There are several other mouse control devices that are difficult to categorise.

The *Micropoint Altra Felix* is a small unit that moves within a defined area. It is controlled by finger pressure. Very small buttons are located on top of the controlling knob.



Micropoint Altra Felix

A *touch screen* is used more for people with intellectual and cognitive disabilities. However if a monitor can be recessed into a desk, so that the screen is almost horizontal, then the touch screen functions more like a large keyboard. Direct access to computer functions would be available.



Touch screen

The *Eyegaze System* uses a special camera to track the movement of a user's eye. It is suited to people with extremely severe disabilities.



Eyegaze System

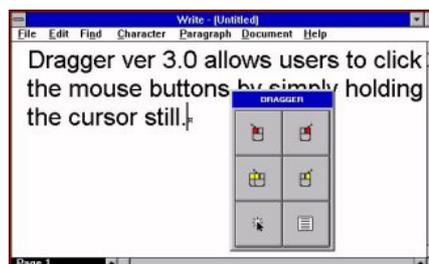
MouseKeys is one of the built-in accessibility features in *Windows* and *MacOS*. It allows cursor control by using the numeric pad on the keyboard. The 5 key is the click button, and the keys around the 5 give directional control.

► SOFTWARE TO ASSIST WITH CURSOR CONTROL

There are several programs that can assist a user with quadriplegia to undertake mouse functions more effectively.

First, a large cursor program such as *Biggy* has many helpful features. A choice of large cursor shapes, some with animated effects, makes it easier for a user to locate and position the cursor. People in wheelchairs are often further away from the screen than other users. *Biggy* also has other helpful options, such as moving to the default button when a dialog box appears, allowing the cursor to move to the edge of the display area and re-appear on the other side, and bringing an application to the front when the cursor moves over it.

Second, there are programs that activate a mouse click automatically after a set period of time. One popular program of this type is *Dragger*. It has its own small window that allows the user to define the next click as a Right Click, Left Click, Double Click or Drag-Lock. The time delay before the click is activated can be set by the user.



Dragger

Problems with Computer Access Technology

There are many alternative computer input options available for people with special needs such as quadriplegia. The diversity, indeed ingenuity, of these devices and programs is a surprise to many. As disability itself is a diverse phenomenon, so the range of solutions required to meet these various needs is expansive.

Yet this very process creates problems for individuals, rehabilitation organisations and employers. In the rapidly changing world of computers, special devices can quickly change from a dream come true into a nightmare.

We can note that, generally speaking, the more severe the disability, the more complex and expensive is the specialised technology required to enable that person to use a computer. This disadvantages those with more severe disabilities.

The more complex the device, the more likely it is to come into conflict with workplace computer systems. An important distinction can be drawn between those solutions that require software to be installed, and those that do not require special software or drivers. The latter are to be favoured in workplaces wherever possible.

Specialised computer technology will invariably lag behind developments in mainstream technology. Smaller companies are involved, with limited resources. It takes time to create new versions of products that are compatible with new operating systems, or to incorporate new developments such as USB, Firewire or Bluetooth.

Finally we can note that many workplaces have networks with protective systems to guard against viruses and intrusions. While the administrators of such networks may have expertise in accommodating new business software,

few have the expertise to integrate specialised technology for people with disabilities.

These practical issues and problems add to the already complex task often required to determine the most appropriate computer input solutions for an individual with a significant disability.

Specialised Services

For a person with quadriplegia there is a range of specialised services available to assist them to gain the benefits of computer technology. The services described below will help identify and support the specialised technology required by an individual with quadriplegia.

However it should be noted that some people with quadriplegia prefer to work out solutions for themselves. They undertake their own research, consult with peers and experiment for themselves. This preference is to be respected.

But many require assistance and specialised advice. In a work setting especially, the issues that arise may be too complex for most individuals to deal with on their own.

These services are described below.

ASSESSMENTS

A computer assessment for a person with quadriplegia has a number of important purposes and is desirable for successful outcomes. The assessment will be undertaken at the person's home or workplace, or at a specialised assessment centre.

Several assessment models have been developed over the years but none has gained widespread support. The “decision tree” in Anson’s book¹³ tries to provide a self help flow chart guide to determine equipment needs, but such is a very difficult task. Scherer has a checklist in her book¹⁴, but again it is ambitious to expect to be able to determine assistive technology needs from a checklist. Most assessment centres have developed their own approaches to assessments.

The process used at *Ability Technology* in Sydney usually involves the following elements:

1. Information About the Client

- ◆ Have they used computers before? If so, what platform? In what circumstances? For what purposes? A person’s past experience will be relevant in choosing computer platforms and systems. It will also influence the training they will require.
- ◆ Are they interested in computers? Are they sufficiently motivated to learn new technologies and systems? This will influence the complexity of available access technologies.
- ◆ Are they reluctant to use technologies that are conspicuous and different from standard systems? Strong resistance to ‘special’ equipment may limit the computer access options available to the person. But such preferences need to be respected in order to avoid future abandonment of the technology.
- ◆ What are the person’s living circumstances? Do they live alone or with family members? This will be relevant in determining their support needs.

¹³ Anson *op.cit.* *passim*

2. Information About the Client's Future Directions

- ♦ Have they adjusted to their new circumstances? Have they accepted what has happened to them? Are they able to fashion a new future scenario for their lives? If they have not reached a stage in their rehabilitation where a personal future can be envisaged then it may be too early to consider computer technology. Applying pressure at this stage can produce resistance and result in delays in the eventual adoption of helpful technologies.
- ♦ What would they like to do in the future? Do they have plans for study or employment? Study and employment both have special requirements regarding computer technology. Portability of equipment may become an issue with study. Compatibility with in-house operating systems and software can be important considerations in employment situations. For example, voice recognition may not be possible in work settings where *Windows* or *Macintosh* operating systems are not used.

3. For what purposes is the person likely to use the computer?

- ♦ Will it be mainly for text? If so then issues of text entry take priority.
- ♦ Will it be for access to information, or graphics? If so then control of mouse functions is a principal concern.
- ♦ Will it be for recreation? If so then control of a joystick will be of major importance.

¹⁴ Scherer 2000 op cit.

- ♦ It is quite likely that the person will require assistance in all three areas, but any emphasis will be relevant.
- ♦ If the system is to be used at work, then issues of compatibility with workplace operating systems and software may limit the choice of available assistive devices.

4. What are the person's capabilities?

- ♦ Upper limb function and especially hand control are important considerations.
- ♦ Their postural stability and comfort are important, as is their level of endurance. Spasm and pain levels are also to be taken into account.
- ♦ Head control and range of movement can be important considerations.
- ♦ Underlying levels of literacy need to be ascertained.

5. What access system will best suit this person?

- ♦ The choice of the most appropriate computer access system for each person will depend largely on the person's remaining *abilities*, the *context* in which the system will be used and the *purposes* for which it will be used.
- ♦ *User preferences* are central to the process. It is the user's right to choose options that are less conspicuous or more comfortable, rather than options that are more efficient. It is important however that they understand and accept the trade-offs involved.

- ♦ The person undertaking the assessment will work with the person who has the disability to select the most *efficient* and *comfortable* text entry and cursor control methods. Often a report will be prepared to outline the reasoning behind the selection.
- ♦ The access system will usually involve *combinations* of the equipment listed earlier.
- ♦ *Cost* is a relevant factor in determining the most suitable computer access options for an individual. Budgetary constraints or limits may affect the available options. The changing price of input devices will also affect their suitability. For example, the falling price of speech recognition means it is now an early consideration in many cases, rather than a last resort. A system of text entry based on head movement, combined with an on-screen keyboard, called *HeadMouse*, cost around A\$2,000 in 1996. A speech recognition system cost around the same amount at this time. Now *HeadMouse* costs A\$4,500 while *Dragon Naturally Speaking Preferred Edition* costs A\$350. However just recently a cheaper head-mounted system called *track IR* has been released, at a price of A\$500. Head-mounted options are now being reconsidered, due to the changing price comparisons with alternative technologies.
- ♦ Usually it is wise to have a *backup* system of access. For example, voice recognition performance may be reduced if the person has a cold. An on-screen keyboard provides an alternative method of text entry.
- ♦ A *trial* of the recommended equipment is often arranged prior to finalisation. It is not possible to determine a person's comfort in

using, say, a trackball, in a single assessment. This will only be determined after a suitable period of everyday use.

- ♦ The assessment should also make recommendations regarding *customisation* and *set up, training* and *support*.

6. What are the requirements for other system components?

- ♦ A scanner may be required for graphics or for converting printed text to computer format (through optical character recognition). However loading paper in a scanner can be difficult for people with upper limb impairment. The inclusion of an *automatic document feeder* (ADF) can help overcome this difficulty for certain types of printed material.
- ♦ The person may be unable to insert and remove CDs independently. This problem can be partly overcome by using a *multiplay CD-ROM drive*, such as the *Pioneer Autochanger*. This allows up to six CDs to be loaded and then accessed at will by the user. Alternatively multiple CD drives could be considered.
- ♦ Backing up can be a vital concern for a person with a disability. Their computer may well be their 'top drawer' and filing cabinet, containing personal documents and files. It is important that a means be provided for these to be backed up by the user himself or herself. A device such as a *Zip Drive* fulfils this purpose well.
- ♦ A standard *desk* is unlikely to meet the needs of a person in a wheelchair. A desk with height adjustment will often be required.

CUSTOMISATION AND SETUP

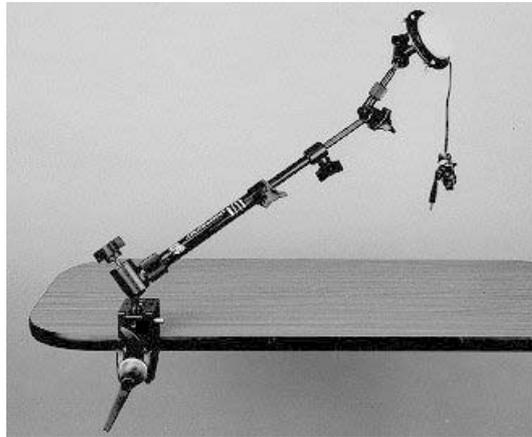
Technical services for people with quadriplegia are often under-estimated. One of the key issues is the need to incorporate specialised hardware or software into already complex computer systems. An expert is often required to set up the computer system and test that there are no conflicts between the various components of the system.

This is especially important when there is a need to integrate specialised components into a work setting. Modern firms often run in-house software on *Unix* or other operating systems that do not accept some drivers designed for consumer level operating systems. A technical expert may need to liaise with the firm's own technical staff in order to solve any such problem. Occasionally there will be a need to liaise with software or hardware manufacturers, to discuss technical issues, error messages or just to download different or updated device drivers.

Once these matters have been dealt with the process of *customisation* can be undertaken. Many options are available in specialised hardware and software for people with disabilities. For example, a trackball such as the *Kensington Expert Mouse* has four buttons that need to be customised to suit the individual. The rate of cursor movement or the speed of double-clicking may need to be adjusted. The "dwell" feature (automatic clicking) will need to be set to a certain speed. An on-screen keyboard will need to be customised and positioned.

A further aspect of customisation is the positioning and placement of equipment. Can the person turn the computer on and off independently? Can they retrieve a printed document from the printer? Does the person's wheelchair control integrate properly with the desk? Are the components of the system placed so as to maximise the person's efficiency, comfort and independence?

Sometimes a device such as a trackball or switch will need to be mounted on a support arm and then positioned appropriately for the person.



Slim Armstrong Adjustable Support Arm

TRAINING

Training needs vary considerably among individuals with quadriplegia.

Some of the factors that help shape these needs are:

- ♦ The person's disabilities, which will affect their rate of learning. Physical disabilities can slow down the cycle of rehearsal and repetition that lead to proficiency.
- ♦ The person's comfort and endurance will also affect training requirements. For example, they may need shorter training sessions.
- ♦ The complexity of the computer system will also affect training needs. More complex equipment will usually require more training. Voice training is a much shorter process in modern speech recognition systems, however the user still needs assistance to develop proficiency in error correction and editing functions.

- ♦ The person's past experience with computers will also affect their training needs. A person new to computers needs to become familiar with the general operation of the system and its main software. It is wise to do this before venturing into the more complex operation of specialised components.
- ♦ Special factors such as literacy, language and medication can all have an influence on training requirements.
- ♦ Often it is useful to include family members, carers and co-workers in the training process.

A person with quadriplegia will usually require individual training, at least at the beginning. Until they are familiar with their system and any specialised components, they will not be able to keep up in a group training session. Lash and Licenziato argue that training needs are "highly individualized according to the person's disability, experience and vocational goals" and should involve:

1. Computer training in a site with adaptations and technology options;
2. Instructors and support systems that are trained to respond to specific functional needs of persons with severe physical disabilities; and
3. Opportunities for independent practice.¹⁵

Computer-based training (CBT) can be very useful for people with disabilities. This is interactive training on CD-ROM (videos are also available). It means that the person can undertake training whenever they choose and for whatever length of session they prefer. They can also repeat or review training modules at their discretion.

¹⁵ Lash M. and Licenziato V., "Career transitions for persons with severe physical disabilities: integrating technological and psychosocial skills and accommodations" *Work* 1995, 5, 85-98.

SUPPORT

Continuing support can be a vital consideration for a person with quadriplegia. They are unable to wiggle a cable or check behind the computer to undertake simple troubleshooting tasks. They will depend on others in many situations.

Support issues vary. Issues that arise can include equipment failure, viruses, operating system crashes, the user accidentally changing a system setting and being unable to undo what they have done, and rogue programs being downloaded from the Internet. A common support issue arises when people upgrade to a new operating system, only to find out that drivers for other system components need to be upgraded. As we have noted, the small companies involved in the production of specialised hardware and software often lag behind in upgrading their drivers, and this can cause frustration for people with disabilities.

Factors that affect support include the following:

- ◆ The person's technical competence and experience.
- ◆ The availability of informed assistance through family members, friends or neighbours.
- ◆ The complexity of the computer system.

A recent Australian study shed light on the support needs of new computer users with disabilities.¹⁶ It found that support requests were heavily concentrated in the first 6 months of usage. While many support issues could be solved over the telephone, almost half required personal visits. A

¹⁶ Smith G., "Computer Assessment, Training and Support for People with Disabilities in Remote Areas" Accessibility Workshop 2001 Dept of Communications, Information Technology and the Arts, 86-91.

small number could be solved through a modem link between a support centre and the user's computer.

Assistive Computer Technology at the Workplace

De Jonge's study in the Australian setting describes a disturbing picture regarding the application of assistive technology at the workplace.¹⁷ The impression is gained of a haphazard process where appropriate outcomes would only emerge by chance or serendipity. It is almost certain that many people with quadriplegia who are employed do not have access to the assistive technologies that would maximise their productivity.

First, there is a *lack of information*. Employees, rehabilitation professionals, unions and employers all share this ignorance, which only enlarged by being pooled. There is a lack of awareness of technological options and possibilities, as well as a lack of awareness as to where to find out about what is available. There are only a handful of centres in Australia that have this expertise.

Second, there are problems in *acquiring the technology*. De Jonge's study shows how difficult it is to find suppliers and to fund the purchase of desired technology. Sometimes inappropriate choices will be foisted on the user and the employer. Delays in obtaining devices can lead to frustrations.

Third, there are problems in *learning how to use* the technology. Some of the devices are complex and require considerable training. There is a lack of qualified and experienced trainers. Sometimes the training needs to take place at work, on the job, yet employers may not provide the necessary support for this to happen.

¹⁷ De Jonge D. (1999) *op cit*.

Finally, there are problems of *integration* of the technology at the workplace. There may be unexpected incompatibilities with in-house software. Technical support for the specialised devices may not be readily available, especially if the device is imported. Use of the technology may interfere with other workers. There can be problems when there is a need to upgrade the device or when the workplace computer systems change.

Interestingly matters involving assistive computer technology have emerged in a number of cases before the *Human Rights and Equal Opportunity Commission*. While none of these involve people with quadriplegia, they nevertheless illustrate how ignorance and confusion surrounding assistive technology at the workplace can cause breaches of the *Disability Discrimination Act*.

The MacNeill case in June 1995¹⁸ concerned a woman with a visual impairment who was provided with special adaptive computer and other equipment by her employer. The equipment failed to operate effectively or reliably and this caused frustration on her part. The frustration in turn led to communication problems with other workers, many of whom were not informed of the way in which the woman's disabilities would affect her pattern and manner of communication. Some resentment against her grew in the workplace. During her probationary period her work was closely scrutinised, on an hourly basis instead of the more usual weekly basis. If she failed to meet the standards during any one hour, then she was regarded to have failed to meet the standards for the whole week!

The Commissioner found that "there was a link between the lack of equipment and intense monitoring and the conduct and communication difficulties displayed by the complainant." Damages were awarded, but not reinstatement or legal costs.

Several other cases have involved issues of computer technology. In one case a Commonwealth employee complained that he had been discriminated against on grounds of his vision impairment in the provision of computer equipment for training purposes. The matter was settled without admission of liability with an apology, payment of compensation and agreement to conduct a review of computer screen requirements for training, which led to provision of a large sized screen (1996).

In another case a woman with an occupational overuse injury complained that she had been discriminated against by being denied an adequate return to work program and being dismissed because of her disability. The employer argued that no light duties were available to enable return to work and that dismissal had been because of a downturn in business. The complaint was settled without admission of liability with an apology, a reference, provision of a computer and other equipment to enable the woman to work from home, and payment of damages for distress and loss of career opportunities (loss of income not being included as this had previously been compensated in settlement of a workers compensation claim) (1996).

A further matter concerned a blind man who complained that he had been discriminated against when he was not employed. The prospective employer advised him that it could not permit him to use his own screen reader technology (which translates electronic text into audible speech) because the computer program could contain viruses. This was in spite of assurances provided by an expert on behalf of the complainant. The matter was settled without admission of liability with payment of \$6000 compensation (1999).¹⁹

¹⁸ HREOC, No. H94/79 Between Amanda McNeill and the Commonwealth of Australia.

¹⁹ These examples are taken from the web site of the Human Rights and Equal Opportunity Commission: http://www.hreoc.gov.au/disability_rights/decisions/decisions.html

Finally an important issue emerged in the *Garity Case* in 1999.²⁰ Ms Garity had deteriorating vision and obtained a job as a telephonist in the Hobart branch of the Commonwealth Bank. The case concerned her attempts to advance her career, particularly through the use of adaptive computer technology. The judgement in her favour included the following comment:

Increasingly, she resented being in a dead end job. The feelings of isolation and exclusion were “because of” her disabilities. Her disabilities explain why she was the victim of so much discrimination. The arrangement which the respondent’s officers thought they had with her goes a long way to explain much of the discrimination against her. The Bank had a policy of giving people with serious sight impairments “a go”. They were proud of what they were doing, a dead end job, they assumed, was better than reliance on social security. Further, they assumed that, because of her obvious sight disability, there was little, if anything, else she could do. That assumption was discriminatory, unlawful stereotyping. The evidence shows the position to be this: because of her disability she got the job; because of her disability, according to the respondent, she was going to remain in that position and not proceed to any other.

These cases show quite clearly the importance for employers to embrace new assistive technology with regard to computer access. The negative motivation is to avoid costly litigation; the positive incentive is that it increases the productivity of the disabled employee.

Conclusions

This chapter highlights three main issues. First, there is a vast array of technology available to assist a person with quadriplegia to use a computer. Even people with very high level quadriplegia will have a productive

²⁰ Sally Garity and the Commonwealth Bank of Australia, Human Rights and Equal Opportunity Commission, 25 January 1999, No. H97/191, Commissioner R. Nettlefold.

pathway available to them. This is a vibrant but not well known sector of the IT industry. Even a person who has minimal head movement or one who relies only on their voice can, through assistive computer technology, become productive computer users.

Second, specialised services (assessment, customisation, training and support) are often required to enable the most appropriate access system to be identified and to implement it for the person concerned. The need for these services increases with the severity of the disability and the likely complexity of the technology required. There is also more likely to be a need for these services in a workplace setting. This is not to diminish the importance of the end user making the final choice regarding the available options. But that choice will need to be an informed one.

Third, the process of implementing assistive computer technology at the workplace is characterised by ignorance, confusion, inadequate resources and lack of expertise. Employers, employees and rehabilitation staff often do not know where to turn for advice. They are often unaware that alternative devices are even available.

The question that these conclusions prompt is this: how will employers be able to maximise the productivity of employees with quadriplegia by taking advantage of this assistive technology? Such connections will not happen automatically. They will require astute policy direction and resources from government.

We turn now to examine the range of policy options available to governments in the whole area of employment for people with disabilities, with some specific attention to those policies that may streamline the process by which people with disabilities can be made more productive at work through assistive computer technology.

CHAPTER FIVE

GOVERNMENT POLICIES ON THE EMPLOYMENT OF PEOPLE WITH DISABILITIES

Introduction

The very nature of disability is such that it can restrict a person's capacity to engage in paid employment. Disabilities that affect communication, mobility and physical and cognitive capacities can certainly diminish a person's ability to undertake the requirements of many jobs. They often also reduce a person's capacity to benefit from education, thus intensifying and compounding the disadvantages a person faces. Should we not then simply accept that people with disabilities will have a lower representation in the workforce? Is not such an outcome more or less inevitable?

The matter is not that simple. There are many questions left unanswered. People with disabilities have skills and abilities, so why can we not find a way to utilise them? Our economy provides a wide variety of jobs to meet the varying capacities of its diverse workforce, so why can it not make adjustments so that people with disabilities can be employed? Why cannot we exploit new technology to make people with disabilities more employable?

Not surprisingly the initiative for advancing the employment of people with disabilities rests with government. It seems clear in most countries that if governments failed to offer supportive provisions to encourage the employment of people with disabilities, then very few people with disabilities would be employed. Government sticks and carrots have an essential place in enabling people with disabilities to gain employment.

Governments also have considerable incentives for achieving jobs for this group, as it reduces their welfare payouts and increases taxation revenue. The ambiguity of government policy in this area is never far from view.

This chapter will explore policy options available to Governments to encourage the employment of people with disabilities, with particular emphasis on those policies that may affect the use of assistive computer technology. We will then explore the development and implementation of such policies in the Australian context.

Policy Options Available to Governments

Governments have a range of policy options available to them and each country has a unique blend of incentives and penalties to encourage greater employment of people with disabilities. But rather than undertake a survey of international practice in this area, a framework will be used to analyse government policy options.²¹

Roessler and Schrinier utilise an ABC model to analyse disability policy options.²² The frequency and strength of performance (B) is affected by antecedents (A), behaviour changing techniques that precede performance, and by consequences (C), behaviour changing techniques that follow performance. In more general terms, policies can be categorised as *preparation, placement* and *post placement*.

However it makes more sense to organise policies in terms of their targets. Employment policies will affect individuals with disabilities, rehabilitation

²¹ Material on the policies of various countries, mentioned in the discussion that follows, is taken mainly from Lunt and Thornton (1993) *op cit*.

²² Roessler R. and Schrinier K., "The implications of selected employment concerns for disability policy and rehabilitation practice" *Rehabilitation Counseling Bulletin* 1991, Sept, 35/1, 52-67.

organisations, employers and governments. These are the agents or actors, the people whose decisions determine the character and extent of employment for people with disabilities. Policies must ultimately affect the decisions and behaviour of these groups if they are to produce favourable outcomes.

The framework developed at the end of Chapter 3 allows the impact of various policies to be mapped.²³ Such a framework also makes it easier to evaluate the success or otherwise of various policies, and to identify ways in which they may conflict with or contradict each other.

POLICIES AFFECTING THE INDIVIDUAL'S DECISION TO SEEK EMPLOYMENT

Studies examined in Chapters 2 and 3 suggest that people with disabilities generally are motivated to work. They are thwarted in that effort by costs (financial and personal) on the one hand, and limited prospects on the other. Government policies need to address these key issues.

Many government policies, direct and indirect, have been implemented to influence the person with a disability and their decision to work or return to work. These range from education and transport policies, to financial bonuses. Their aim is to increase the incentives for people with disabilities to seek employment and to reduce some of the costs involved.

If anticipated *wages* are low then many people with disabilities will regard the prospect of employment as not worth the effort. Policies can ensure that workers with a disability receive a reasonable net income from their employment. *Marginal tax rates* should not be so harsh as to inhibit

²³ It is also possible that it could be used to identify areas for research, which would in turn refine the accuracy of the framework. For example, it could be proposed that up-front bonus payments have a greater impact on small businesses than large ones. If true, it would then be a "positive" influence on small employers but a negligible influence on large ones.

employment. Government social security payments that are too high may inadvertently provide a disincentive to seek or resume employment. As we have seen, economic studies show that social security payments do have an impact on individual decisions regarding labour force participation. In some countries a person with a disability can retain their pension or allowance when they are employed, up to a certain income level (Ireland, Australia). The rate at which a pension tapers off as employment income increases will largely determine the net income from employment.

Individuals with disabilities will be empowered if they believe they are protected from *discrimination* and that firms will have to make suitable *accommodations* to give them access to the workplace and to the work itself. This reassurance will give some individuals greater confidence to enter the labour market. The ADA and DDA are examples of anti-discrimination legislation.

Other legislation can also encourage people with disabilities to enter the workforce. People with disabilities need sources of *information* on assistive technology, and advice on what options are most suitable for them. Such will increase their belief in their own potential productivity, and this may encourage them to believe that obtaining a job is more realistic than would otherwise be the case. In the USA the *Technology Related Assistance Act of 1988*, replaced by the *Assistive Technology Act of 1998*, addresses this need.

Some governments go further and fund the development of better *assistive technology*, to further increase the potential productivity of people with disabilities. In some situations governments subsidise or fund the purchase of assistive technology for people with disabilities. In many cases it becomes an aspect of “reasonable accommodation” that the employer must make (see later).

Many people with disabilities cannot attend workplaces without some form of *personal care assistance* for toileting, washing and eating. Government subsidisation of such costs would be vital for this group, for them even to contemplate seeking employment.

Many people with disabilities receive a safety net of *concessions and benefits* (e.g., health, transport, telephone). They may risk losing them if they enter employment. Some governments safeguard these concessions for people with disabilities who enter paid employment. The recent *Ticket to Work and Work Incentive Improvement Act of 1999* in the USA allows people with disabilities to enter the workforce without losing their medical insurance. In the Netherlands amendments have been made to their sickness benefits legislation, to permit injured workers to return to work gradually or to seek work with an alternative employer.

Government schemes should provide security and affordability of *transport* systems, otherwise the person will not be able to get to and from work, or they won't be able to afford transport costs. This can be a decisive issue for many people with disabilities, including those under consideration in this study. Some countries go further and pay subsidies to assist a person with a disability to purchase or modify a motor vehicle (Ireland and Sweden, for example).

Some governments *publicise and promote* the successful employment outcomes experienced by people with disabilities. This is done through publications and advertisements. This can inspire individual employment efforts as well as helping to develop community expectations that people with disabilities can and should work.

In very few countries *cash payments* are made directly to people with disabilities who commence employment. These include "integration grants" in France and one-off cash grants in Australia.

Government policies to encourage people with disabilities to seek employment must alter the economic equation in favour of that decision. The likely gains, through wages after tax, government payments and transport subsidies, must exceed the costs to the person, in terms of actual transport costs, loss of benefits and loss of pension. The result of changes to this equation can have a significant impact at the margin. Numerous government policies are implicated.

In addition, policies should elevate the perceived employment prospects of people with disabilities. Anti-discrimination legislation can help, as can the promotion of successful role models. The equipping of individuals with appropriate assistive technology, including computer technology, would also serve the purpose of increasing the individual's sense of their own productivity and employability. This is important because for many people with disabilities, the costs of entering the workforce are certain whereas the gains are a matter of probability.

POLICIES AFFECTING THE JOB PREPARATION PROCESS

Between the person's decision to enter the workforce and the commencement of employment there is usually (but not always) a process of job preparation. This typically involves the acquisition of relevant employment skills, work attitudes, job seeking skills and career advice. It often involves a rehabilitation service and/or a job placement agency.

Most countries recognise the need for specific *education and training* programs for people with disabilities and make these available. These can include training in job seeking skills (such as resume writing and interview techniques) to increase the prospects for a person to obtain employment.

Skill development is only part of the job preparation process. As people with disabilities will usually be looking at a narrower range of suitable jobs, the process of *career guidance* will often be crucial in setting realistic employment goals. Most governments fund job search agencies that specialise in job placements for people with disabilities.

Government policies to address *segmentation* in the labour market are likely to benefit people with disabilities along with other minority groups. Such policies would serve to widen the employment target for people with disabilities.

Some governments provide support to assist a person with a disability to set up their *own business* (Australia, Belgium, Greece, Portugal and Sweden, for example). In Spain concessional interest loans apply, as well as grants for the purchase of fixed assets.

Given the strong link between education and employment for people with disabilities, any steps taken by governments to improve and resource the *education* of people with disabilities should result in increased employment prospects in the future. This would be especially relevant for people with cerebral palsy, who are usually disadvantaged in education well before they face disadvantage in the labour market.

POLICIES AFFECTING EMPLOYERS

Employers in general would prefer not to employ people with disabilities. A small proportion would favour such employment for personal, religious or altruistic reasons, but for the majority of employers the presumption should clearly be that there is little reason for them to choose to employ people with disabilities.

It is little wonder that most government programs and policies in this area are directed at employers, to encourage them to employ more people with disabilities. These policies are usually a mixture of penalties and incentives.

Anti-discrimination legislation may impose penalties for non-compliance and therefore encourage employers to employ and retain people with disabilities. However it may, as one commentator on the ADA remarked, “stimulate the employment of workers who have the least serious disabilities and the strongest education, training and job skills. Employers will have an incentive to skim the ‘cream’ of the population with disabilities to get that combination”.²⁴ Excessive penalties may discourage employers from hiring people with disabilities at all.

Some countries, including most European countries, have opted for systems that involve *quotas*. Employers are required to include a certain proportion of people with disabilities among their staff. In some cases (such as Belgium and Ireland) the quota only applies to the public sector. In some countries (such as Italy) the quota is apparently easily circumvented or ignored. Usually the quota is fixed once a firm exceeds a certain threshold level of employment. However in Luxembourg the quota percentage increases for larger firms.

In France the system is complex, with the quota varying according to different weightings given to groups of employees, with adjustments also being made due to dealings with sheltered workshops. Employers can also meet their obligations indirectly by reaching an *accord* with employee representatives, to further recruitment, integration, training and technical adaptations in a particular plant or company.

²⁴ Burkhauser R., “Beyond stereotypes – Public policy and the doubly disabled” The American Enterprise 1992, Vol 3 Sep/Oct, 66.

The experience with quotas has been mixed. Some see the quota system as punitive. The Canadian scheme has been criticised for focusing on the total numbers employed, and not their distribution or progression within the organisation. This has led to “a workforce in which disabled people are crowded in certain occupational groups, usually at the lower end in terms of status and income.”²⁵ In Germany employers of 16 or more employees are obliged to ensure that at least 6% of their workforce is made up of people with disabilities, otherwise a compensation levy is payable. Yet in 1989 only 19% of employers had met their quota and 44% did not employ any people with disabilities. In the UK almost 90% of companies failed to meet the 3% quota when that system was in operation.²⁶

Some countries (such as Denmark and Greece) utilise a system of giving preference to or reserving certain positions for people with disabilities. These systems are based on the fact that people with disabilities often have limited employment options. As a result these systems of preference try to protect some avenues of employment for people with disabilities.

In some countries firms must report regularly to a government authority as to the number of their employees who have disabilities. Such reporting can trigger further government action (such as in Canada), but in other cases it appears to be more a ceremonial requirement, and is often ignored by companies.

In some cases where a system of quota exists, firms can choose to pay a fine or levy rather than meet the quota. In France, for example, employers have the option of making a voluntary contribution to fund for the vocational integration of disabled people (AGEFIPH) instead of meeting quota

²⁵ Raskin C., “Employment equity for the disabled in Canada” International Labour Review 1994, 133/1, 80.

obligations. This has been a growing option among employers, especially larger ones, with 68% of firms with 500 or more staff opting for these payments (in 1991).

In Germany a *compensation levy* is payable by employers who fail to meet their quota. As in France, many employers prefer to pay the levy rather than employ people with disabilities. Funds are used to subsidise employment elsewhere.

One must question the impact of the contribution/levy in France and Germany. It is clear evidence of the reticence on the part of employers to employ people with a disability. Yet it does little to challenge their negative attitudes and foster long-term change.

Some governments require employers to fund the cost of *reasonable accommodations* for disabled workers. These accommodations are specified in the ADA as including job restructuring, altered work schedules, acquisition or modification of equipment, modifications to training materials and changes to policies. This cost may provide a disincentive for employers to employ those disabled applicants who require workplace accommodations. In some cases governments meet these costs (as in Australia). If the full cost is met then there is no incentive for employers to seek cost-effective solutions. In Canada the cost of such accommodations is deductible in the year in which they were incurred.

Policies do not address the cost in management time to accommodate a disabled employee – this can be a major problem for small businesses.

In some countries the government sponsors the operation of services to provide employees with *information on accommodations*. The *Job*

²⁶ Lunt N. & Thornton P., Employment Policies for Disabled People – A Review of Legislation and Services in Fifteen Countries 1993, Social Policy Research Unit, University of York.

Accommodation Network (JAN) in the USA and the REHADAT in Germany are examples.

Policies and incentives to encourage employers to *re-employ* injured workers will increase employment of these workers and may open doors for new employees with disabilities. In the Netherlands, for example, sickness benefits were recently increased from 70% of previous salary for injured workers (with employers paying the difference), to 100% of previous salary. This was done to increase employer incentives to re-employ injured workers.

Employer concerns about being unable to dismiss an unsatisfactory worker with a disability would be fuelled by policies that give *special protection* to disabled workers. In the Netherlands, for example, workers with disabilities can only be dismissed with the approval of the regional employment office.

In Luxembourg disabled workers are entitled to an extra six days *paid leave* per annum, while in Germany the entitlement is five days (pro rata). Such would serve as a disincentive for employers to take on an employee with a disability, as it would reduce their effective productivity.

In some cases governments use their influence as purchasers of goods and services to request changes in the employment policies of prospective suppliers. Such a *contract compliance* policy applies in Canada and the USA. The *Rehabilitation Act of 1973*, with its amendments in 1986, 1992 and 1998, has had a powerful influence in the USA. The Act prevents discrimination against people with disabilities and requires affirmative action on their behalf in Government departments and in organisations in receipt of federal contracts of \$50,000 and with more than 50 staff. Companies receiving \$10,000 or more in funds must abide by the non-discrimination provision of the law, but not the affirmative action component. Discrimination is also prohibited in all programs or activities conducted with federal financial assistance. Not only has this legislation had a major impact in its own right,

but also the fact that it has been emulated in many States has served to expand its influence.

The *Rehabilitation Act of 1973* has also been used recently to make Government departments, agencies and contract recipients comply with new electronic and information technology standards. The Section 508 amendments (also known as the *Workforce Investment Act of 1998*) cover hardware, software and peripherals. Standards under this legislation were announced in June 2001 and are sending ripples through the computer industry.

Not all government programs directed at employers are punitive. There are many positive inducements offered as well. For example, in some countries an employer can receive *tax concessions* or exemption from social security contributions if they employ a certain number of workers with disabilities. This applies, for example, in Luxembourg, Spain and Portugal. In Sweden employers receive *payroll tax deductions*.

Policies that provide for a *trial period of work* can give re-assurance to an employer, who may fear getting 'locked in' to an unsatisfactory employment arrangement. In Belgium special apprenticeship contracts of one year have proven popular. In Quebec recipients of social security are able to undertake work experience for up to 15 months without losing their benefits. Employers receive a small payment to cover their costs.

Wage subsidies can be offered as an encouragement for employers to take on people with a disability. This is a common policy but one which usually has no clear objective. Sometimes it is an inducement, whereas in other cases it appears to be more a form of compensation.

Sometimes the wage subsidy is a fixed amount (as in Greece), whereas in other cases it is linked to the worker's productivity. In Belgium for example,

the employer pays the full wage but the difference between this and the worker's actual performance is reimbursed by the government. In Denmark the employer must meet at least 60% of the normal wage, with the rest being paid by local authorities. Productivity is reviewed annually. In Luxembourg the wage subsidy varies between 40% and 60%, with periodic reviews, while in Germany the subsidies are paid on a sliding scale, for up to three years, and can be as high as 80% of the wage. In Ireland's *Employment Support Scheme* and Australia's *Supported Wage System* a person's wage is topped up by the Government.

Systems vary also according to their duration. In Belgium the subsidy lasts up to a year but is renewable. In Portugal a series of lump sum payments are made, and these can be extended on a sliding scale for to up to 3 years in total.

Provisions that permit employers to pay disabled workers a wage commensurate with their productivity will quell employer fears about paying more than they need to.

Other direct payments are available in some countries. Luxembourg has a *settling in allowance*, to compensate employers for lost production associated with a new position. In Portugal an *integration award* is paid to employers who take on a disabled worker. Similarly the Netherlands has a *supervision subsidy* to cover for extra time and effort that may be involved in integrating a disabled person into the workplace. Such a need must be established. Also in the Netherlands a bonus of 50% of the gross annual salary is paid to an employer who employs a person with a disability for at least one year. However this is an alternative to a 20% wage subsidy for up to 4 years – an employer cannot receive both benefits.

The experience of Spain with *recruitment grants* is quite illuminating. Employers receive a lump sum payment but they must agree to employ the

disabled worker for at least three years. The number of disabled workers cannot exceed 51% of the total staff (except if they are the only worker on the payroll). In the case of a fair dismissal of the worker, they must be replaced with another disabled worker. What is interesting is that 58% of firms receiving these grants had less than six staff; a further 25% had between 6 and 25 staff. This suggests that small firms may be especially attracted to such lump sum grants that are not tied to specific expenditures. Such payments are distinguished as being *incentives* rather than just being *reimbursements*.

In Denmark a subsidy of up to 20 hours a week can be paid for a *personal assistant* to help enable a person with a disability to meet the full requirements of the job. This facility is also available to self-employed people with disabilities. A similar system in Portugal can operate for up to 6 months, limited to twice the minimum monthly wage.

Many governments provide *practical support* to assist employers once they have taken on an employee with a disability. Some programs provide for a support person/coach to be present with the individual in the early phases of their employment. This can help ease them into the job situation and streamline acceptance by co-workers.

Subsidised *training* will take that burden from the employer. An outside organisation will train the employee until he or she reaches required levels of productivity.

Specialised *support services* will reassure the employer that resources will be available to assist the employee with any special needs. These services are usually made available in the early period of employment and are provided from outside the organisation.

In several countries *accords and partnerships* between industry and employee organisations are encouraged. In France, for example, such accords are available as an alternative means for employers to meet their employment obligations. The accord may set recruitment targets or develop innovative employment plans (like the company that took workers from a sheltered workshop to staff a telephone sales service).

In the USA the *Projects with Industry* scheme was established in 1968. It seeks to establish links between industry and rehabilitation service agencies. Each project has a Business Advisory Council and a training site, usually run by a rehabilitation centre. By 1991 over 125,000 people had been placed into employment through the scheme, with over 5,000 businesses involved.

In some countries special *awards* are made to employers who employ people with disabilities. The *Prime Minister's Employer of the Year Award* in Australia, the *Citation for Excellence in Employment Equity* in Canada, and the *Merit Prizes* awarded on the *Day of Disabled People* in Portugal, are examples. The main aim of such awards is to encourage other employers to employ people with disabilities.

Governments can fund the appointment of a management person who will work within a large organisation and specialise in the placement of people with disabilities within the organisation. The Australian *SEPO* (Special Employment Placement Officer) scheme is probably unique in this regard.

Governments as employers can increase the proportion of their own employees who have disabilities. As well as directly increasing the employment of people with a disability, this may be seen as a way of encouraging other employers to do the same.

Employing a person with a disability does entail costs for an employer, a fact that is resisted in some Government circles. These costs are not simply those

of accommodations, but also include training, management and job redesign. The policy dilemma for governments is that penalties that are too severe will discourage the employment of people with disabilities, while subsidies may not be compelling for businesses. Simply to reimburse employers for the additional costs incurred when they employ people with disabilities is not in itself an incentive – the distinction is important.

POLICIES AFFECTING THE CONTINUITY AND DEVELOPMENT OF THE EMPLOYMENT RELATIONSHIP

Most of the policy attention is directed towards preparing the person with a disability for employment and in enticing the employer to hire workers with disabilities. Much less attention is given to the task of supporting and encouraging the continuance and development of the employment relationship once it has commenced. Yet studies tell us that many employment placements do not last. We also know that there is a tendency for employees with disabilities to be placed in jobs without great promotion prospects.

The availability of *training* and the upgrading of skills will give the person the opportunity to increase their competence and productivity. The availability of such a service will assist the employer to seek the most productive outcomes for their disabled workers.

Sometimes employers can obtain *advice on continuing accommodations* as the employee's role develops in the organisation. Assistance in the area of computer options is especially useful.

Policies that allow firms more *flexibility* in the organisation of jobs can assist the integration of workers with disabilities. These may include policies to reduce union demarcations between jobs.

Overall there have been very few policies designed to promote the support and development of existing employment relationships. Policies emphasise the *initiation* of the relationship. However the study by Roessler and Rumrill²⁷ referred to earlier shows that nearly 50% of vocational rehabilitation clients were not employed after one year. This points to a serious policy omission. One could argue that many of the support services and subsidies that are available at the beginning of the relationship should be made available when needed at later stages.

We turn now to an analysis of how Australian policies towards the employment of people with disabilities have developed, and to an evaluation of the current mix of policies and programs.

²⁷ Roessler and Rumrill op cit.

The Development of Australian Government Policies and Programs Regarding the Employment of People with a Disability

INTRODUCTION

Australian government involvement in disability issues, including employment programs, has been extensive. Many of the policies in evidence in other countries can be seen in Australia as well, with several innovations. It seems that the Australian community looks to the government to show leadership and direction in this area. Disability employment is still viewed by most in the community as a welfare issue.

However policy directions have been inspired, not so much by a vocal disability movement, but by a series of strategic reports, commissioned by the Government itself, to address and evaluate policies and programs in the area. Such reports create a dialectic within Government policy-making that has provided the impetus for change. The history of Government policies to encourage the employment of people with disabilities is largely a history of Government-sponsored reports and Government responses to them. There has been very little academic scrutiny of disability policies and programs.

In the sections that follow we look at a brief history of early approaches to disabilities in Australia, before turning to a series of major reports: *New Directions*, *Ronalds Report* and *Working Solutions*. We also include the recent but seriously flawed *Making it Work* study. Finally we use our framework to examine and evaluate contemporary Australian policies on the employment of people with disabilities.

THE PERIOD TO 1983²⁸

Employment was not the prime objective for people with disabilities early in Australia's white settlement. The pressing issue was where to put them. Initially they were kept in gaols or in hospitals attached to gaols.

A government grant enabled the Benevolent Society of NSW to build and operate the first asylum in 1821 in Sydney. It housed the chronically ill as well as the "blind, paralytic, lame or idiotic". They were people who were unfit for labour and unable to live independently. Similar institutions followed in the other colonies. It was a system of "custodial institutionalisation" in which individual rights were not considered.

It wasn't until the 1890s that the charity model and the institutionalisation of people with disabilities were challenged. The question of cash social services was debated during this period. Slow Workers Permits were introduced with the *Conciliation and Arbitration Act* in 1904, but have never been widely used.²⁹ In 1908 the Invalid Pension was introduced for people over 16 permanently incapacitated for work and not receiving the age pension. Private insurance arrangements emerged through Friendly Societies and covered about a third of the population by 1910.

Disability that arises through accident or disease is part of the background in society and can therefore avoid the sharp focus of public scrutiny. But the disaster of war creates a new category of people with disabilities and a different intensity of community and government response, together with new policy labels such as "repatriation". Following World War 1, in 1919, the Repatriation Commission was established to repatriate returned soldiers. It was involved in many vocational training schemes.

²⁸ Main sources for this section are B. Dickey, *No Charity There* 1989 Allen & Unwin Sydney, *Australia's Welfare* 1993, AIHW, and Parmenter T., "Effecting a system change in the delivery of employment services for people with disabilities: A view from Australia", *Journal of Vocational Rehabilitation* 1999, 13, 117-129.

Following World War I and up to the 1960s, there was a gradual shift in public and professional perceptions towards and acceptance of the notion of educational, vocational and community support for people with a disability. Much of this change in community perception related to the large number of veterans rehabilitated during the period... Employment and the provision of training for employment became major objectives in the provision of support services for adult people with a disability from the 1950s.³⁰

Thus the new challenge of those disabled through war inspired broader changes in the community regarding people with disabilities in general. This was an experience Australia shared with most other affected countries.

The interwar period saw the emergence of a number of significant community initiatives. Typically these were organisations established by parents of children with disabilities. The organisation now known as The Northcott Society was established in 1929 as The NSW Society for Crippled Children. It was set up by the Rotary Club of Sydney in a bid to assist those children and families who had been affected by polio and tuberculosis. Similarly The Spastic Centre of NSW was established in 1945 by parents of children born with cerebral palsy.

Once again war inspired changes in community and government responses to the issue of disabilities. In 1941 what later became the Commonwealth Rehabilitation Service was created, to deal with rehabilitation needs of returned soldiers. After the war this service was made available to others with injury or disease. Services included job skills training, therapy and the prescription of aids and equipment.

The 1950s saw the emergence of sheltered workshops. These were typically disability specific and set up by charities with community fundraising and

²⁹ In 1988 there were 59 permit holders in NSW and 39 in Victoria. See Ronalds *op. cit.*, 202.

³⁰ Australian Institute of Health and Welfare *op. cit.* 268.

voluntary support. The practice of building accommodation hostels on site, while serving to overcome travel problems for those with severe disabilities, also had the effect of increasing the power of these charities over the lives of the people involved.

There is no doubt that sheltered workshops provided a neat solution to the problem of employing those who were deemed not to be able to obtain jobs in the open market. Those who were part of this movement sought to give dignity and self-respect through work to those with disabilities. The unintended result was the creation of ghettos of people whose lives revolved around a single workplace and adjacent living quarters. The shadow of the sponsoring organisation covered every aspect of their lives, from personal care and therapy, to work, transport, accommodation and food.

Calls for Government involvement grew during this period. Sheltered workshops began to place pressure on Governments to subsidise their activities. The sheltered workshop movement coalesced at the First National Conference of Sheltered Workshops, held in 1961. This pressure led to the *Disabled Persons Accommodation Act 1963*, which gave financial support for accommodation costs for people in sheltered workshops. It was replaced by the *Sheltered Employment (Assistance) Act 1967* which provided grants for both sheltered employment and accommodation. This is what Parmenter calls “the combination of the medical and welfare/charity models of service”.³¹ In 1970 the Act was amended to provide agencies with a salary subsidy to provide accommodation for clients in open employment.

In 1974 the *Handicapped Persons Assistance Act* was introduced to replace a plethora of legislation. This increased existing subsidies, provided new subsidies for training, therapy and rehabilitation centres, plus building, equipment and rental subsidies. These changes led to a rapid growth in

activity. By 1973 the number of people in sheltered employment doubled, to 7,400. By 1986 there were 11,353 people with disabilities in sheltered workshops, with over 11,000 in training centres and over 7,000 in residential accommodation.³²

However the sheltered workshop movement was not the only movement of the time. As we have seen in earlier chapters, the human rights movement in the 1960s had implications for people with disabilities. It led to the formation of consumer-controlled, as opposed to parent-controlled, organisations and services. The Australian Quadriplegic Association (AQA) is a good example of a consumer-controlled organisation in the Australian context. It began in 1967 when a group of young people with spinal injuries in a major Sydney hospital were told that they would have to be transferred to a geriatric nursing home. They decided to form their own association. In 1976 they built a headquarters and arranged the lease of accommodation facilities. But they were unable to obtain government funding until 1980. AQA is characterised by having a majority of people with disabilities on its Board (something which came much more painfully and slowly in parent-controlled organisations) and by a policy that requires all residents to be involved in some form of activity or employment away from the premises (again in contrast to the combination of employment and accommodation that characterised sheltered workshop arrangements).

Normalisation emerged as a doctrine in the 1970s. People began to challenge the current models of support services, especially doubting their capacity to promote independence and participation in the community. Advocacy groups and councils were formed in the 1970s and 1980s. In 1971 Australia became a signatory to the UN *Declaration on the Rights of Mentally Disabled*

³¹ Parmenter *op cit*. 118.

³² Australian Institute of Health and Welfare *op cit* 18.

Persons, and in 1975 to the UN *Declaration on the Rights of Disabled Persons*. These declarations emphasised the right to human dignity, self-reliance and integration. The 1975 Declaration states that people with a disability “have the right, according to their capabilities, to secure and retain employment or to engage in a useful, productive and remunerative occupation”.

The *Royal Commission on Human Relationships* (1977) concluded that “we must ensure that handicapped children and adults are not denied their legal and human rights: the right to education, the right to work, and the right to lead lives which are as close as possible to normal”.³³

The *International Year of Disabled Persons* (IYDP) in 1981 had the twin themes of full participation and equality. It helped arouse awareness in the community regarding people with disabilities. There were calls also for people to have a genuine say in the services provided for them. In many ways it can be seen as the trigger for the significant changes in government policy that were to follow in the 1980s. Even the ACTU developed a *Disabled Workers’ Charter* at their 1981 Congress.

The momentum for change crystallised around a major review of the *Handicapped Persons Act* that took place in 1983. Its recommendations were tabled in parliament in 1985 in a report entitled *New Directions*.³⁴

NEW DIRECTIONS (1985)

The *New Directions* report was based on extensive community consultation. It noted that only 30% of people with disabilities aged 15-64 were in the

³³ Royal Commission on Human Relationships 1977 Final Report, AGPS Canberra.

³⁴ New Directions: Report of the Handicapped Programs Review 1985 AGPS Canberra. As Parmenter points out, 1983 was also the year when the government funded an Australian chapter of Disabled People’s International and established the Disability Advisory Council of Australia. Parmenter op cit., 118.

labour force, compared with 70% for the total population. Yet people with disabilities were just as keen as others to obtain paid employment.

The report noted that previous government policy emphasis had been directed to sheltered workshops. Major reservations were expressed about these facilities in the review, as it reported on community sentiments:

Confusion over the role of sheltered workshops was widespread and clarification was demanded. Much criticism was directed at the unchallenging and inappropriate work frequently found in workshops and at the low level of wages paid. The confusion of the Sheltered Employment Allowance (SEA) with wages was also mentioned.³⁵

Significant issues were identified that restricted employment opportunities for people with disabilities. These included the lack of employer incentives, the disincentives to work inherent in the social security system, the need for more flexible work options and the need for support and training. Various government policy options were discussed. With insight the report recommended a focus on “attempting to change the pattern of available jobs” rather than on just services to the individual. The request was largely unheeded.

The Report recommended a shift from sheltered employment to competitive and supported employment. Clear outcomes were nominated: the number of people placed in employment, the number of people kept in employment and the level of wages paid to disabled workers. It suggested that individuals should be funded, to purchase services themselves. Incentives for employers were canvassed: tax relief, cost subsidies, wage subsidies and the creation of “incentives for setting up home based employment”. Recommendations also covered the revamp of the Slow Workers Permit system, alterations to the wage system to allow for the differential

³⁵ New Directions op.cit. 34.

productivity of disabled workers and changes to the social security system to avoid poverty traps. Its recommendation to establish a National Bureau of Disability Research was not implemented.³⁶

Before we analyse the avalanche of government legislation, policies and programs that flowed from *New Directions* we must pause to consider this seminal report. On the positive side we can see insights into many future issues. Unfortunately many of these were unheeded by policy-makers. The devastating critique of the government's efforts that was to arise in the 1990s would have been unnecessary if the signposts of *New Directions* had been followed. Yet blame for some of the problems that emerged later and impeded change can also be laid at the feet of *New Directions*. In its enthusiasm to promote the employability of people with disabilities it fell into the trap of overstatement. Thus "All individuals with a disability should be given a range of incentives to encourage them to opt for open employment placement."³⁷ Likewise the task, almost fetish, of measuring the productivity of workers with disabilities, also takes its cue from *New Directions*. This report clearly set the agenda for the ensuing period to the present day.

The first major outcome of the review was the *Disability Services Act*, which was enacted in 1986.³⁸ Its focus was on positive outcomes for people with a disability, and on the move from segregated, institutionalised services to

³⁶ Parmenter *op cit* 119-120.

³⁷ *ibid* 38. Such unrestrained enthusiasm was evident in government publications even prior to the release of *New Directions*. A government pamphlet entitled *A Guide to Employing Disabled People* published in 1983 begins with these words: "Employers, both here and overseas, who employ disabled people know that the work performance of disabled men and women is equal to that of non-disabled workers." Further, "there is no reason why the performance of a disabled person, if well matched to the job, will be any different from that of an able-bodied employee." Department of Employment and Industrial Relations, *A Guide to Employing Disabled People* 1983, AGPS Canberra.

³⁸ See also *Disability, Society and Change* 1988, AGPS Canberra, which is a resource manual on the Principles and Objectives that accompanied the Act.

community-based consumer-driven services. Older services had to go through a period of “transition” to the new requirements. Two types of new services were specified, taking the lead from *New Directions: Competitive Employment, Training and Placement (CETP)* and Supported Employment (SE) services.

The Principles and Objectives of the *Disability Services Act* are wide-ranging, and strike a balance between ideals and practical concerns. For instance, Objective 8 states: “Programs and services should be designed and administered so as to ensure that no single organisation providing services should exercise control over all or most aspects of the life of an individual with disabilities.” The intention was “to deinstitutionalise segregated services, increase the range of service options and include people with a disability into wider community life.”³⁹

The *Disability Services Program (DSP)* was established in 1987 to implement key elements of the *Disability Services Act*. Transition by existing sheltered workshops to the new system was “slow and sometimes unwilling”⁴⁰ and took a lot longer than expected. One reason for this reticence is that some organisations felt the government’s intention was to close sheltered workshops and force all people with disabilities into the open labour market. There was a feeling that the government was pushing an idealistic agenda without being informed about the real needs of their client groups. The pain was greatest in parent-controlled organisations. In 1990 the *National Technical Assistance Unit* was funded to assist sheltered workshops in adjusting to the new service models. In 1992 the Act was amended to extend the transition period indefinitely. By 1996 only 35 of the 480 traditional

³⁹ Baume P. and Kay K., *Working Solution — Report of the Strategic Review of the Commonwealth Disability Services Program* 1995 AGPS Canberra, 23.

⁴⁰ Australian Institute of Health and Welfare, *op cit* 273.

employment services had made progress towards meeting the principles and objectives of the Act.⁴¹ It was going to be a long, drawn out process.

RONALDS REPORT (1990)

In 1990 the Ronalds Report, *National Employment Initiatives for People with Disabilities*, was released.⁴² This consultancy was commissioned to look at:

- ♦ payment of productivity-based wages;
- ♦ unionisation of workers with disabilities;
- ♦ EEO and affirmative action; and
- ♦ adequacy of legal protection for employment and working conditions.

The study was based on extensive national consultation. The Report pursued the line that greater employment opportunities for people with disabilities would flow if appropriate wage payments could be determined more accurately. "A fair and equitable system of measuring skills and productivity and paying a reasonable wage needs to be developed."⁴³ This, it is argued, is "central". The Report calls for an extensive system of assessment, implementation, monitoring, evaluation, review, renewal and dispute settlement processes.⁴⁴ A potential target group of 60,000 people with disabilities was envisaged.

The Report did identify other barriers to the employment of people with disabilities:

⁴¹ Parmenter op cit. 121.

⁴² Ronalds C., National Employment Initiatives for People with Disabilities — A Discussion Paper 1990, AGPS Canberra.

⁴³ ibid 4.

- ♦ employer behaviour
- ♦ family concerns
- ♦ access to premises
- ♦ transport
- ♦ type of job
- ♦ job design
- ♦ training and ongoing support
- ♦ income support

A number of strategies to create employment opportunities for people with disabilities were raised, but left for further government evaluation. These included, *inter alia*, contract compliance, targeted grants, tax subsidies, affirmative action and community education.

The Report makes useful recommendations in the legal areas, but the employment analysis goes little beyond listing problems and options. It lacks a model or coherent framework. The discussion about wages never really resolves the tension between wages as determined by market forces and wages as a reflection of measured skills and productivity.

The Report made recommendations for unions, mainly in the area of information and awareness. It also recommended anti-discrimination legislation. Computer technology was not addressed.

The Ronalds Report defined disability employment policy over the next five years. The following outworkings can be noted.

⁴⁴ ibid 7.

Commonwealth-State Disability Agreement (1991)

The Commonwealth State Disability Agreement (CSDA) was negotiated in 1991. Under this agreement responsibility for disability services was divided between Commonwealth and State governments. In essence the Commonwealth retained responsibility for employment services, while the States kept responsibility for accommodation and other support. Some items, such as research, were shared. As part of the arrangement the States were to enact complementary legislation to the *Disability Services Act*.

A review of the CSDA began in April 1995 under Anna Yeatman. Extensive consultations were undertaken and several interim reports published for comment. The final report was published in July 1996⁴⁵, and there was expectation in the disability sector that a second CSDA would be negotiated before the expiration of the first CSDA in June 1997. Delays were caused by fighting between the Federal Government and the States, before the second CSDA was finalised in 1998.

The review highlighted a number of fundamental problems with the initial CSDA. These included the lack of coordination between employment services and other relevant services (such as accommodation and transport) which impacted upon employment; the lack of data on disability to inform policy; the lack of meaningful non-vocational activity services; the lack of coherent policies to cover transitions such as school to work, or work to retirement; and the need for therapy, equipment and carers to be brought within the scope of the agreement. While the Final Report addresses these, there is a tension in the document between two competing objectives: the need for consistency on a national level on the one hand, and the need for flexibility and innovation on the other. The recommendations of the Report strongly favour the first objective at the expense of the second.

Implicit in the Report is the dissatisfaction of people with disability and their carers with a heavily bureaucratised and professionally dominated service system.⁴⁶

The Equipment Study, prepared as part of the review, has relevance for this thesis.⁴⁷ Even though the issue of equipment was not brought within the CSDA, it was the focus of this Supporting Paper because of “significant concerns about the complex system of equipment schemes that currently exists with a multiplicity of services funded by both Commonwealth and State levels of government across a number of sectors”.⁴⁸ The study shows the bureaucratic maze that people must confront to access government technology programs.

The term “equipment” is used to cover the full range of aids and appliances more commonly labelled “assistive technology”. The Report concluded “the current provision of equipment for people with disabilities in Australia is fragmented, lacking in access, equity, effectiveness, efficiency and accountability”.⁴⁹ The study itself has some weaknesses. For example, its terms of reference asked it to examine government programs, thus missing the delicate interplay between funded and unfunded sources of assistive technology. Questionnaires were loosely distributed (some disability organisations made photocopies for their members) so the status of the resulting sample of users (n=389) is suspect. Further evidence for this is that over half of the responses came from Queensland and Western Australia, whereas NSW and Victoria provided only 21.4% of responses.

⁴⁵ Yeatman A., Getting Real – The Final Report of the review of the Commonwealth/State Disability Agreement 1996, AGPS Canberra.

⁴⁶ Parmenter op cit. 125.

⁴⁷ Ernst and Young, The Equipment Study – Supporting Paper 5, Commonwealth/State Disability Agreement Evaluation 1996, AGPS Canberra.

⁴⁸ ibid 1.

⁴⁹ ibid viii.

The study points out that equipment was not allowed for in the *Disability Services Act (1986)*. The original *Program of Aids for Disabled People (PADP)* was introduced by the Commonwealth government in 1981 as an initiative for the IYDP. It was administered by the States and then, in 1987, funded by the States with Commonwealth grants. This allowed a wide variation in State schemes to develop. The study recommends the establishment of a national body to provide consistent national eligibility and assessment criteria, and to identify and rectify areas of duplication and overlap. These recommendations were essentially ignored.

For our purposes we can note that the current equipment or assistive technology schemes in general do not include modern technology such as computers. Even electronic communication devices are only included in the schemes in Victoria and Queensland.⁵⁰ Further, these schemes do not apply to people with disabilities who are working; the Study indicates that these people need to turn to resources such as the *Commonwealth Rehabilitation Service*, thus fragmenting the system further. To this we could add the various technology schemes that operate in the education systems of each State.

The second CSDA emphasises cooperation and linkages between the Commonwealth and the States. It maintains Commonwealth responsibility for employment services and the shared responsibility for research. Sadly there is no provision for equipment (assistive technology) once again.⁵¹

The gulf between equipment programs for those not at work, and sources of equipment funding for those who are entering the workforce, creates a barrier for those people seeking to move from the former to the latter. A

⁵⁰ There are proposals to include such items in the NSW PADP scheme. Changes have yet to be finalised.

⁵¹ Department of Health and Family Services, *Disability News* June 1998, 12-13; and *Commonwealth/State Disability Agreement*, from www.facs.gov.au.

person seeking to establish their work readiness through computer skills will not receive assistance in that task unless it is provided through a charity or privately.

The lack of coordination of technology programs and policies creates a significant barrier to the adoption of such technology by people with quadriplegia. Our haphazard approach to this issue must be strongly contrasted to the way in which it is actively and aggressively pursued in the USA through its legislation processes. Assistive technology has been bypassed in the CSDA. The schemes that are available focus on technology to *restore function* and fail to envision technology as a tool to *increase productivity*.

The Disability Reform Package (1991)

The Disability Reform Package (DRP) was announced in the 1990-91 Budget. It marked what Baume calls “a shift in government policy to encourage rather than discourage people with a significant disability from employment”.⁵² The Invalid Pension was changed to the Disability Support Pension, which enabled part-time work and part pensions. It also extended fringe benefit concessions for 12 months after initial employment and increased mobility allowances. Three Government departments jointly administered the scheme. At the local level the DRP involved community panels with representatives from each of the Departments. The DRP also expanded training, rehabilitation and community employment places.

The aims of the DRP were stated as follows:

- ♦ To improve the participation of people with disabilities in employment, education and training.

⁵² Baume and Kay op cit 29.

- ♦ To make it easier for people with disabilities to participate in, and contribute to the community.
- ♦ To make sure that people who have severe disabilities and who have limited job prospects get adequate and secure income support.⁵³

There has been a greater emphasis on employer strategies under the DRP. These included New Work Opportunities (NWO), the National Training Wage (NTW), Wage Subsidies under JobStart, the Disabled Apprentice Wage Subsidy, an allowance of up to \$5000 to fund workplace changes and special equipment, the Work Experience for People with Disabilities (WEPD) program, and the CRS Work Training Scheme.

There was still a tendency to overstate the benefits of employing people with disabilities in the DRP, viz: "People with disabilities... are as dedicated and productive as anyone, if not more so."⁵⁴ The DRP is also based on the doubtful assumption that employer decisions to employ people with disabilities are wage sensitive.⁵⁵

However as Parmenter notes, "Over the last decade there has been a dramatic increase in the number of people supported in employment in the open labour market", which he regards as "the one great success of the Disability Services Act".⁵⁶ In the year to September 1998, 358 agencies supported 30,668 people with disabilities in employment.

⁵³ More Opportunities for People with Disabilities Disability Reform Package 1991.

⁵⁴ The Disability Reform Package Employer Information 1995, AGPS Canberra, 1.

⁵⁵ See Mangan J., "The Effectiveness of Wage Subsidies for Persons with Disabilities" Australian Bulletin of Labour 1990, Mar, 32-43.

⁵⁶ Parmenter op cit. 122.

Disability Discrimination Act (1992)

The *Disability Discrimination Act* (DDA) was introduced following the recommendations of the Ronalds Report. Employment is one of the key areas covered by the Act. Section 15(1) of the DDA makes discrimination unlawful on the grounds of a person's disability:

in the arrangements made for the purpose of determining who should be offered employment; or

in determining who should be offered employment; or

in the terms and conditions on which employment is offered.

Section 15 (2) adds further grounds for unlawful discrimination:

in the terms or conditions of employment that the employer affords the employee: or

by denying the employee access, or limiting the employee's access, to opportunities for promotion, transfer or training, or any other benefits associated with employment; or

by dismissing the employee; or

by subjecting the employee to any other detriment.

Employers can discriminate lawfully if the person would be unable to carry out "the inherent requirements of the particular employment" [15.(4) (a)] or, if in carrying out those requirements, would require services or facilities "not required by persons without disability" and the provision of these would impose "an unjustifiable hardship on the employer" [15.(4) (b)]. Unjustifiable hardship is not defined but is determined by taking into account "all relevant circumstances" (Section 11). We have discussed the operation and limitations of the DDA in Chapter 2.

Many employers appear to have adopted a minimalist stance in response to the DDA. They ask, “What is the minimum we have to do to comply with the requirements of the legislation?” rather than asking “How can I make this person as productive as possible, for their benefit and for ours?” The actual requirements are elusive for employers. There has been no improvement in the labour force participation of people with disabilities between 1993 and 1998.⁵⁷

Linked to the DDA was the *Commonwealth Disability Strategy* (CDS), which represented the Government’s compliance with the DDA. It involves a wide-ranging commitment to re-examine all Government policies and programs to ensure that the needs of people with disabilities are addressed. It has recently been reviewed and renewed. We have already noted there has been no improvement in the employment rates of people with disabilities in Commonwealth government employment, so we should regard the CDS as largely ceremonial.

Supported Wage System (1994)

Also arising from the Ronalds Report was a further consultancy looking at wage determination for people with disabilities.⁵⁸ The Dunoon Report recommended processes by which a supported wages system could be established in Australia. In particular it focused on ways in which people with disabilities should be assessed with regard to their productivity.

This report is weakened in that it assumes that the work to be undertaken will be award-based, essentially manual work. It thus has limited application to new technology-based employment opportunities that have since emerged. It does however suggest productivity assessments should

⁵⁷ See Tables 1 and 2 in Chapter 1.

⁵⁸ See Dunoon D., Consultancy on the Development of a National Assessment Framework for a Supportive Wages System 1992, AGPS Canberra.

follow appropriate placement, job redesign, workplace modification and training:

It is important that these issues are considered at the outset, so that the assessment can proceed on the basis that the placement is well formulated and that necessary “reasonable adjustments” have been attended to, to allow the worker to perform the job to the best of his or her ability.⁵⁹

The *Supported Wages System* (SWS), which was announced in the 1993-94 Budget, was based on the recommendations of the Dunoon Report. It effectively replaces the little-used Slow Worker’s Permit scheme. It was developed in collaboration with the ACTU, the Australian Chamber of Commerce and Industry and peak disability groups. It allows workers to be paid a pro-rata award wage based on an independent wage assessment. Employers can receive payments for workplace modifications, while workers can receive a Disability Wage Supplement to top up their wages. A trial period of up to 12 weeks is available. Annual reviews are prescribed. All other conditions of employment are to be the same as for other workers.

In October 1994 the Industrial Relations Commission approved the insertion of a Model Clause covering the SWS arrangements into a number of Federal awards. The Model Clause covers eligibility and assessment procedures, and provides for workplace adjustments and a trial period. Other terms and conditions of employment are to be the same as for all other workers covered by the award/agreement, on a pro rata basis. It was introduced to other awards on a case-by-case approach, so that in June 2001, 58 of the 100 most commonly used Federal awards contained the model clause. However less than half of NSW State Awards contain a supported wage clause.⁶⁰

⁵⁹ *ibid* 34.

⁶⁰ Department of Family and Community Services, *Supported Wage System Evaluation* 2001, Canberra, 73. The review was undertaken by consultants from KPMG Consulting.

Further support for the system was written into the *Workplace Relations Act* 1996, including the arrangements for Australian Workplace Agreements. Under this Act employees can appoint their guardian, a disability employment service, a union or any third party as their bargaining agent.

Over 85% of SWS agreements receive industrial approval through the award system rather than through certified agreements (10.8%) or Australian Workplace Agreements (2.2%).

By the end of 1996/97 a total of 1,721 people had participated in the SWS. Government figures at the time showed that the average participant worked around 23 hours per week, had a productivity assessment of 55% and was paid around \$130 per week by their employer.⁶¹

A review of the SWS was recently undertaken.⁶² It found that:

- ♦ 77% of employees covered under the SWS were aged less than 36.
- ♦ 68% had an intellectual/learning disability.
- ♦ Median hours worked was 20.
- ♦ Median assessed productive capacity is 50%.
- ♦ There is a trend away from manufacturing to service industry employment.

Between June 1997 and June 2000, 3675 people accessed the SWS. Of these, 1302 had ceased participating by June 2000. It is estimated that in 30% of these cases the job was withdrawn, in 40% of cases the worker withdrew or took another job, and in 6% the worker was medically unfit to continue. Only in 7% of cases did the worker progress to a full award wage.⁶³

⁶¹ Department of Health and Family Services, *Disability News*, 1997, Dec, 3.

⁶² Supported Wage System Evaluation *op.cit.* 17.

⁶³ *ibid.*

The review notes that, while most participants see the SWS as an improvement over its predecessors, some have misgivings about it. Some employment services have “philosophical objections” to the SWS, arguing “the system focuses on people’s disabilities rather than their abilities”.

The review notes the limited applicability of the SWS for jobs that were not process-focused:

For example, for two people with physical disabilities who were undertaking computer programming, the assessment tool had no capacity to measure the value of their work in the planning and development phases. Nor were there any other suitable jobs within the workplace to benchmark their performance against.⁶⁴

Other employers felt the system is too focused on productivity, and does not take account of competencies or work attitudes.

The review concluded that the system basically worked well, and proposed a range of adjustments and administrative changes. However the strongest conclusion concerns the fact that the SWS is not well known:

An overarching theme throughout the Evaluation has been the general lack of awareness and understanding of the SWS by people with disabilities and employment assistance agencies. There is a need to develop a comprehensive marketing strategy for the SWS.⁶⁵

WORKING SOLUTION (1995)

A major evaluation of the Disability Services Program (DSP) was undertaken by Peter Baume and Kathleen Kay in 1994. Their report, *Working Solution*, was released in January 1995.⁶⁶ It represented a fundamental critique of the current system. “There is no coherent overall policy for disability services

⁶⁴ *ibid* 45.

⁶⁵ *ibid* 60.

⁶⁶ *ibid*.

for all people with a significant disability, outcome commitments are lacking, performance measures relating to outcomes are meagre or non-existent".⁶⁷ A "paradigm shift" is required, they argue.

One of the main problems identified in the report was that funding was based on "historical accident" rather than need or equity. Grants were then indexed from this base, rather than being related to outcomes. Further, these block grants were given without the DSP knowing how they were spent. They found that there were enormous variations in the annual cost of services, ranging from \$1,100 to \$42,770 per client in employment or training. This variation was not explained by level of disability or outcomes achieved.

The DSP was unable to answer questions about its client group and had to commission special research to find out the size of its potential target group.

The report recommended funding to be assessed for each individual, rather than being based on service providers. If the person moved, their funding would go with them. Innovation and competition should be encouraged. Consumer choice should be built into the system: "the focus will move from services to individuals, from process to outcomes and accountability to clients and the funder". They argued that all clients should receive award-based wages, based on an independent assessment of their productivity.

The Government responded to the Baume and Kay report in July 1995.⁶⁸ There was broad acceptance of *Working Solution's* recommendations and a promise to implement the key changes in the future.

The 1996 change of Government interrupted the planned response to the report. In the 1996-97 Budget the government announced a broad reform agenda for disability employment services. These included the formation of

⁶⁷ *ibid* 1.

⁶⁸ Lawrence C., Response to Working Solution, the Final Report of the Strategic Review of the Disability Services Program 1995 July.

Centrelink, a one stop shop for people seeking assistance. Initially it was planned that from May 1998 *Centrelink* would offer a “coordinated eligibility assessment” for all new job seekers and would replace the Disability Panels that operated under the DRP.⁶⁹ The aim was to channel all people with disabilities through the new FLEX scheme. However the government was forced to back down in the face of mounting opposition from the large charities in particular.⁷⁰ First, the government affirmed the offer of sheltered employment for those choosing this option. Second, although all new job seekers with disabilities had to make initial contact with *Centrelink*, people with disabilities had access to specialised employment programs offered through the Department of Health and Family Services as well as those offered through the Department of Employment, Education, Training and Youth Affairs (DEETYA). The government continued to fund the organisations providing these services. Third, the new competitive system of case-based funding “will not be introduced in the immediate future for disability employment services funded through the Department of Health and Family Services.”⁷¹ A trial of a new case-based funding arrangement commenced in 1999 and has still not concluded. Other reforms included the development of a quality assurance system.

MAKING IT WORK (THE EMPLOYER STUDY) (2001)

As a reflection of Government concerns regarding employer recalcitrance in employing people with a disability, a major study was commissioned in 1998. Its aim was essentially to generate data that would prove that

⁶⁹ Department of Health and Family Services, Improving Access to Employment Assistance for People with a Disability 1997 Canberra.

⁷⁰ Smith W. More Choices for Job Seekers, Ministerial Statement, November 1997.

⁷¹ ibid 7.

employing a person with a disability was a cost effective option for employers.

The rehabilitation sector and government have been fond of this type of data ever since its emergence in the USA. Its origins can be traced to a US government study in 1948 that showed people with a disability were slightly more productive than able-bodied workers. Other favourable data on the employment of workers with disabilities, regarding their low turnover and absenteeism in particular, came from single company studies (such as duPont). The methodology of these studies has never been verified independently. Nevertheless this limited set of data became folklore in the USA and here, where remarkable statements were made, such as “studies show that people with disabilities are *more productive* than other workers”.

This was the background to the Australian study. The original tender documents make it clear that the Government was seeking similar persuasive data from the Australian context, data that could then be used to market the employment of people with a disability to employers. The government sought tenders for a study “to evaluate the outcomes of employing a person with a disability from the employer’s perspective”.⁷² One of the main tasks of the study was to “provide quantitative analyses of employers’ experiences of employing people within the Department’s target group compared to the wider workforce in areas such as retention rates, workers’ compensation premiums, absenteeism, productivity, workplace modifications, training and supervision”.⁷³ The aim was to demonstrate that employing people with disabilities is cost effective for employers. However such data is clearly not available for most workplaces (which itself is indirect evidence that these cost factors are not the determining factors in employer decisions).

⁷² Department of Health and Family Services, Tender Brief 52/98, 5.

⁷³ ibid.

The research was undertaken by the Institute of Disability Studies at Deakin University, under Associate Professor Joe Graffam. A report was completed in 2001.⁷⁴ It uses data from the National Information Management System (NIMS) database, which from 1995 has kept data on all funded disability employment services. NIMS is administered by the Australian Institute of Health and Welfare Studies. The study also involved a survey of 643 employers, a survey of 56 managers of employment services, and semi-structured interviews with 48 employers, 37 disability employment managers and 21 employees. It is the most extensive study of its type ever undertaken in Australia.

The objectives of this substantial study were:

- ♦ To identify outcomes for employers when employing a person with a disability.
- ♦ To compare employer outcomes when employing a person with a disability to the wider workforce.
- ♦ To analyse how the employment of a person with a disability influences cost structures in a cross section of Australian industries.
- ♦ To examine the effectiveness of disability employment services in meeting employer needs and contributing to positive outcomes for employers.
- ♦ To identify factors that promote or constrain successful employment outcomes for people with a disability.

⁷⁴ Graffam J. et al., Making it Work: Employer Outcomes When Employing a Person with a Disability 2001, Deakin University, Melbourne.

The study concludes that its results are “generally, if not overwhelmingly, positive”.⁷⁵ However the data does not support such a conclusion. The study is unfortunately plagued with major problems with methodology. Given the scale and likely influence of this report, these matters will be discussed in some detail.

The first difficulty with the project’s methodology is its failure to incorporate economic insights into the analysis. The literature review is devoid of economic discussions on employer employment decisions, discrimination and wage policies. The study is not alone in this omission, as we have seen, but the literature review does claim to include “international and domestic literature related to employment of people with a disability”.⁷⁶ As a result the report lacks a methodology. It is simply a report on basic data. Very few correlations are drawn.

A major weakness in the methodology is that it uses the funded disability employment agencies as the only source of employers in the study. This obviously limits the study to employers who are current clients of these funded services, when one would have thought interviews with employers who don’t employ people with a disability, and those who have perhaps rejected the supported services and accomplished the task another way, would have been pertinent.

This problem is compounded in that the study gained access to these employers via the employment support agencies. It is a bit like asking a shop to recommend customers to interview. Surely we would expect in both cases to be put in contact with those who viewed the organisation favourably.

A similar bias arises in the method used to determine individual employee performance. While some innovation was required to meet the rather naive

⁷⁵ ibid 23.

⁷⁶ ibid 2.

aims of the project, the method adopted is very inconclusive. Employers were asked to provide information on one “referent employee”, being one person they had employed through a funded employment service between 1996 and 1998. It is likely in my view that employers would choose someone they viewed favourably. This method also excludes unsatisfactory employees, those who were returning to work after an injury and those who had left the firm.

In the report’s general analysis people with a disability are lumped together. There is no attempt to differentiate the experience of people with different types of disability (even broadly, such as physical or mental disability) nor to differentiate on the basis of severity of disability. As we have seen, these should be vital considerations in studies of this type.

The general findings, based on the NIMS data, were:

On average, employees with a disability were less often employed permanently, more often part-time, earned less money, but had a lower rate of leaving their jobs (turnover rate). These differences can be partly explained on the basis of the jobs/positions held... A majority of jobs reported were rather basic service or production jobs, with relatively few professional and management positions reported. Conditions within larger organisations were better than within small ones.⁷⁷

The analysis becomes flaky when data from individual firms is tabulated. On the question of productivity, for example, the figures show that employers rated employees with a disability as 38.3% slower and producing work of 27.5% lower quality than an average employee. This is minimised in the report, with the comment that people with a disability achieved results “near medium” on the scale. No attempt is made to link this lower productivity to other employer concerns, such as the effect on profits.

⁷⁷ ibid 6.

The impact of the employee with a disability on the work environment (e.g., morale, efficiency, behaviour, customer relations) was lower than for an average employee in nine out of eleven items. These differences were statistically significant. Again the true impact of these findings was sidestepped, with the remark “comparisons aside, the impact of the employee with a disability on the work environment was rated near or above ‘good’...”.⁷⁸ Again, reality is not allowed to interfere with a good story.

The study finds that career advancement opportunities were rated lower for employees with a disability. While we are in the dark regarding the nature and severity of the disabilities, it would probably be no surprise that employers would see employees who were less productive and who had an inferior impact on the work environment as having less career potential. The interesting question is *how* employers make such judgements and *how* it affects their other decisions. These vital issues are not addressed in the study.

Data is presented on the benefits and costs of employing a person with a disability. These show there are lower costs involved in employing a person with a disability. However the differences were not statistically significant, due to the large variations in responses. One wonders whether the effect of government wage and workplace modification subsidies have played havoc with this data.

Further data is presented on the benefits and costs of modifications, training and supervision. These are counted rather than costed, making the data very difficult to interpret. They are generally favourable, except for probably the most important one from an employer’s point of view: profit.

⁷⁸ ibid 8.

The follow up interviews with employers produced less favourable results than the surveys. More disadvantages were nominated, especially in areas such as the work environment and economic factors. These interviews gave employers an opportunity to comment freely and unambiguously. However the report snatches at another explanation: “interviewees may simply have been suggesting that any cost is a disadvantage, even if there have also been clear benefits”.⁷⁹ This is hardly plausible.

The report’s summary conclusion is at variance with its own data: “we find generally positive effects on productivity and profits... an employee with a disability can be seen as a catalyst for positive change and improved performance within employer organisations”.⁸⁰ We have clearly moved from analysis to hyperbole.

Even though the funded employment services had nominated employers for the research (thus excluding employers who had deserted these services) these employers still expressed major misgivings with the services provided. Over half made negative comments about service models used (raising matters such as lack of consultation, having a “placement mentality”, focusing on placements and not the long-term support for the person, being over-protective and operating from a welfare model). Further, 42% made negative comments about service practices (including lack of follow up, bad job match, too much or too little training, too much contact with employee, poor information about the disability). Given the select nature of this group, one would have to flag this as a major problem area.

Interestingly 59% of employers said they had received subsidies, and 51% of these said these were important in their decision to employ the person with a

⁷⁹ *ibid* 13.

⁸⁰ *ibid* 14, 15.

disability. This would be useful if this was linked to the size of the firm and to the economic cycle.

While the report somehow produces a positive conclusion to the study, it does list five elements of the employment process that are “sometimes problematic”. These are:

- ♦ Lack of employee preparation and poor work ethic.
- ♦ Pressure to make a placement and resultant poor person to job match.
- ♦ Insufficient consultation between employer, employee, and disability employment service.
- ♦ Insufficient attention to employer needs and organisation characteristics.
- ♦ Insufficient ongoing support to employer and employee by disability employment service (and insufficient funding for that purpose).

“Making it Work” is an apt title for this research, for whatever data was uncovered, it was crafted into a positive outcome. One feels that a major opportunity to address a key issue has been missed.

We turn now to an evaluation of the current policy mix in Australia. This evaluation will be undertaken using the framework developed in Chapter 3.

An Evaluation of Current Australian Policies Regarding the Employment of People with Physical Disabilities

Government policies to facilitate and encourage the employment of people with disabilities in Australia have evolved over the last 20 years. This journey reflects many aspects of our own culture and history, and although it has been influenced by trends elsewhere, particularly in the USA, it is a unique journey.

What is the current status of disability employment policy in Australia? The summary below shows that our present policy mix is a strong reflection of the history that preceded it.

POLICIES TO ENCOURAGE PEOPLE WITH DISABILITIES TO SEEK EMPLOYMENT

As we have seen, the person with a disability must evaluate various benefits and costs in order to decide whether or not they should enter the workforce. Most people with disabilities indicate that they would prefer to work.

The Australian government has in place a number of policies aimed at encouraging people with disabilities to seek employment. The *Disability Discrimination Act*, although ostensibly aimed at employers, is also intended to give greater confidence to people with disabilities seeking employment and to legitimise their efforts in seeking paid work.

However, as we have discussed, there is reason to believe that public awareness of this legislation has been lacking in Australia. The failure to provide a central focus, such as “reasonable accommodation”, has muffled the impact of the DDA in this country. As in the USA with the ADA, most of the cases here involve people who are already employed rather than those who are seeking employment.

One of the key issues facing people with disabilities, as they contemplate involvement in the workforce, is that of the possible *loss of benefits*. Some policy changes under the *Disability Reform Package* and subsequent programs have softened the economic cost of moving from the *Disability Support Pension* to paid employment. However there is some doubt as to whether these changes are sufficient to tip the decision in favour of employment. Current rates for the Disability Support Pension (single rate) are \$410.50 per fortnight. A recipient can earn up to \$112 per fortnight and still receive the full pension. Income earned beyond that amount reduces the pension by 40 cents per dollar earned. This is more generous than for general unemployment benefits (under *Newstart*), which reduce at up to 70 cents per dollar earned.

Pension recipients also are eligible to receive a Pharmaceutical Allowance, Rent Assistance, a Health Care card and Travel Concessions. These can be quite significant, especially for individuals taking medication. An individual must make careful calculations to ascertain what wage would justify giving up these benefits.

These benefits are largely retained if the individual works part-time rather than full-time, thus providing a strong incentive for people to opt for part-time work. There is an economic cost to such under-employment.

A *mobility allowance* is available for those in paid or voluntary work. The current amount of the payment is \$64.40 per fortnight. This is not taxable and is payable for work (including voluntary work) or vocational training, amounting to at least 8 hours a week. Taxi subsidies are already available to those who require special taxis.

Another enticement in the Australian system is a *cash payment* of \$312, made available for people with a disability who commence employment.

The question must be asked: are these policies sufficient to encourage people with disabilities into the labour force? Government policies that increase benefits for people with disabilities (such as pensions, rent assistance and pharmaceutical allowances) provide economic disincentives for them to seek paid employment. They increase the costs of losing such benefits and mean a higher expected wage or higher probability of gaining employment would be needed to tip the balance back in favour of seeking employment. Alternatively, there could be policies in place that enable people to retain fringe benefits for longer when they gain employment.

One approach aimed at increasing the individual's belief in their own capacity to gain employment is to *promote successful role models*. The Government did attempt this once before, in 1993. A booklet was published that outlined the successful work experiences of thirteen people with disabilities.⁸¹ There is no information on how widely this booklet was distributed or on its impact. But information such as this may provide inspiration for people with disabilities to seek employment.

The government could also provide *information and advice on assistive technology options*. As it stands the awkward division of responsibility between Commonwealth and State governments has meant that Australian policies regarding assistive technology, especially computer access technology, have been weak. An Australian variation of the *Assistive Technology Act of 1998* would serve a number of purposes. It would give people with disabilities a sense of their own productive potential. It would give them lines of support and advice into the future. It would provide them with the tools with which to seek employment and raise their expectations of the wage income they could generate.

⁸¹ Department of Employment, Education and Training, *The Working Lives of People with Disabilities* 1993, AGPS Canberra.

A recent conference in Canberra, involving many people who were funded to research assistive technology in Australia, put forward an interesting proposal in its final communiqué. It proposed, *inter alia*, the following:

In order to promote future research in the area of assistive technology, and to encourage the development of an effective assistive technology industry in Australia, we propose the establishment of an Assistive Technology Research and Development Corporation.

This would enable the work initiated by AccessAbility, especially in terms of the encouragement of research, to continue. The Corporation would:

Encourage and fund future research into areas of IT & T and disability. This would include the hosting of regular workshops and conferences, and the development of research resources (such as the AccessAbility Database).

Assess the marketability of new products and services, including (but not limited to) those arising from the research it sponsors.

Provide long term loans and other partnership arrangements to enable the commercial development of those products and services deemed to be marketable.

Receive income from these loans and partnerships to fund further research and cover its costs of operation.

The work of this Corporation would foster the development of an Assistive Technology industry in Australia, with considerable export potential, especially in the Asia region.⁸²

Other recommendations included a scheme to make information technology more available to people with disabilities, and a training scheme.

The Workshop and other forums where assistive technology practitioners and developers in Australia gather suggest that we have in this country a sector with imagination, vision and skill, but lacking in resources and coherence. The news about assistive technology is not making it through to those who are waiting on the employment sidelines.

⁸² AccessAbility Workshop Recommendations, 29 May 2001.

POLICIES TO EQUIP AND FIT PEOPLE WITH DISABILITIES FOR EMPLOYMENT

In terms of our framework there are two aspects to the work preparation process for people with disabilities. The first is the extent to which the person can be equipped with work relevant skills. This involves skills and behaviours relevant to work involvement. The emphasis here is on *education and training*.

The second area is on the process of matching the person to suitable job opportunities. People with disabilities usually have a smaller job target than those without disabilities. The challenge is to find jobs that match the person's skill profile and interests. The emphasis here is on *career guidance*.

With regard to the development of work skills, the process really begins at school. It is not possible to make an overall assessment of an education system that varies considerably between States, between private and public systems, and between mainstream and specialised education processes. What we can say is that, if computer related skills are vital for entry into the modern workforce, then we would look to these education systems to provide computer access solutions and computer skills to students with disabilities. Anecdotally we know that there are enormous variations in the success of schools in this regard. Resistance to computer technology is not uncommon among teachers involved in special education. More specific research would be required to advance this line of enquiry further.

In terms of training in job related skills, there is what must be recognised as a confusing array of vocational training options for people with disabilities. Some programs are conducted by disability organisations. Others look at post-school options programs (such as the NSW ATLAS program, currently under review). There is the *Community Support Program, Disability*

Employment Services run through the Department of Family and Community Services, various types of assistance available through *Job Network*, placements under the *New Apprenticeship Scheme*, and specialised courses available for people with disabilities through TAFE. The individual may need to contend with a variety of Governments, departments, organisations and officers. Cross referral, say from *Centrelink* to a specialised disability employment service, would be expected. The bureaucratic barriers to the attainment of employment skills should not be underestimated.

Job placement can often occur with the assistance of a disability employment service. There have been few opportunities to evaluate their skill in matching the person to the job, but the recent employer study did provide some useful information about the effectiveness of these services from the employers' perspective.⁸³ Bearing in mind that employers included in the study were nominated by the job placement agencies themselves, their comments are even more revealing. Of the comments made by this select group of employers, 55% criticised aspects of the service model used, including such issues as lack of consultation, having a "placement mentality", focusing on placements with no long-term plan for the employee, being overprotective of clients, having unrealistic expectations and working from a disability/welfare paradigm.

Service practices were also criticised in 42% of the comments made by these employers, with matters such as lack of follow-up, bad job match, inadequate training and poor information about the disability being mentioned. Around 40% of the comments made about staff were also negative, with matters such as lack of professionalism, incompetence, turnover of staff and insensitivity to employer needs being mentioned.⁸⁴

⁸³ Making It Work (2001) *op.cit.*

⁸⁴ *ibid* Part 1, 15-17.

Other studies suggest that one of the problems employers have with job placement agencies is that agency staff have little understanding of business organisations and financial aspects of business. This issue was not addressed by the *Making It Work* study as such, but some of its conclusions could be open to such an interpretation.

These agencies do not have ready access to information or resources on assistive technology. Individual support workers will etch out their own sources of information, but this is inferior to their having access to a more comprehensive and public information service.

The success of policies in this area is difficult to gauge. The simplest method would be to interview employers more frequently (and more randomly), to ascertain their views as to the preparedness and suitability of disabled employees who have been referred to them. A professional and effective vocational rehabilitation and job placement service is vital for those who choose to use such services. There is room for considerable concern about the effectiveness of current services.

POLICIES TO ENCOURAGE EMPLOYERS TO EMPLOY PEOPLE WITH DISABILITIES

It is fair to assume that most people with disabilities want to work; in the case of employers, the presumption is that they do not wish to employ people with disabilities. They must be persuaded to do so, and this is a challenge for government policies.

Policy objectives include measures to lower the cost or perceived cost to the employer of employing a person with a disability, policies to increase the productivity or perceived productivity of people with disabilities, and policies that make it costly not to employ a person with a disability.

Like most countries, Australia has developed a range of policies (mainly penalties and incentives) to encourage employers to offer employment to people with disabilities. Central among these is the *Disability Discrimination Act*. We have already discussed at length how the wording of this Act fails to mention the key concept of *reasonable accommodation*. As a result, it lacks persuasiveness for employers in Australia. The recent major study of employers found that compliance with the DDA was not a significant consideration by employers in their decisions to employ a person with a disability.⁸⁵

The danger with legislation of this type is that it may *reduce* the employment of people with disabilities. Employers may feel that to employ a person with a disability would be “inviting trouble”. The HREOC cases referred to earlier show that complex issues can be involved in integrating employees with disabilities into a workplace; the prospect of facing legal action and penalties for not getting it right will hardly inspire other employers to follow suit.

Effective support for employers who do employ a person with a disability is lacking in Australia. We have no equivalent to the *Job Accommodation Network*. In the area of adaptive computer technology for instance, there is ignorance and confusion. Employers are often unaware of available options and resources.

It may be possible for the Australian Government to pay a fee and actually join Australian employers up to the JAN in the USA. This would give our employers access to an enormous range of insights and information.

Interestingly around 14 previous winners of the *Employer of the Year Award* in Australia have banded together to form *Employers Making a Difference*

⁸⁵ Making It Work (2001) *op cit* 44.

(EMAD). They plan to market the benefits of employing people with a disability to other employers.

The other policy emphasis in Australia has been to reimburse employers for additional expenses they may incur by employing a person with a disability. Wage subsidies are available, for example, under the *Job Network* program. An amount of up to \$1500 (or 13 weeks pay, whichever is the lesser) is paid to employers who place a person through a funded employment service.

The *Supported Wages System* enables firms to take on people with disabilities and to pay them a wage commensurate with their productivity. This has not been as affective as might have been anticipated. It presumes jobs where activities can be measured, such as manufacturing, and is far less suited to office work or work involving a computer. The majority of participants in the SWS have intellectual disabilities.

The issue of productivity has been central to the system of determining the wages of workers with disabilities in Australia. Yet the concept has never really been given proper analysis. One reason for the attention, even obsession, with productivity is the simplistic belief that a determination of the productivity of a worker would alone make the employment of such a person more compelling. The irony is that such rigorous calculations are rarely used by employers to determine the productivity and wages of their other workers.

One common misconception is that productivity only depends on worker skill and effort. In the case of workers with disabilities, it can become a measurement of their disability rather than their capability. For the major part productivity depends on management prowess, technology, job design and market fortunes. What is critical is the match between the skill profile of the worker with a disability and the work context in which they are being placed. It is true that some measure of a fair wage will be required in many

cases, to avoid exploitation. But that task cannot be allowed to displace the more important one of finding the right type of work and technology in the first place so that the person can be most productive. At best, the measurement of productivity will tell us the productivity of *this* person doing *this* work at *this* time.

Assessment of a worker's productivity will usually occur at the beginning of the employment. Yet this may be before accommodations, including adaptive technologies, are in place. The Dunoon report, upon which the SWS was based, emphasised the need for job redesign, workplace accommodations and work trials to take place prior to an assessment of a worker's productivity.⁸⁶ It is difficult to imagine that this takes place in practice, as it would stretch out the employment process by months. Yet an accurate assessment of a worker's productivity for a particular job depends on such a process. Otherwise it becomes a measurement of disability, not productivity.

Just as the medical model of impairment has had to give way to a social model of disability, so a view of productivity that focuses on the worker's disabilities alone must give way to a concept that the work environment will largely determine the productivity of a worker with physical disabilities.

One further problem noted in the recent SWS review is the requirement for employers to complete more than 20 forms to provide a person with a supported wage.⁸⁷ This must be changed.

Under the SWS employers can receive reimbursement for up to \$5000 of the cost of *workplace modifications*, to enable an employee with a disability to be employed. However there is very little information available to employers

⁸⁶ Dunoon D. with Green J., Consultancy on the Development of a National Assessment Framework for a Supportive Wages System - Report to the Wages Subcommittee of the Disability Task Force, AGPS, Canberra, 1992.

⁸⁷ Supported Wages System Review op cit., 23.

regarding assistive technology options. As we have already observed, this information is not well known by employers or job placement agencies.⁸⁸

There is a paradox in the fact that USA employers are provided with information on job accommodations, but no funds to undertake the workplace changes, whereas in Australia employers receive funding to undertake changes, but no information on what accommodations would be desirable!

Up front payments of \$1000 are available under the SWS to employers who don't already have employees under the SWS scheme. These little-known payments are for job redesign, training and assistance from co-workers, assistance with wage assessment, and time spent in arranging award changes.⁸⁹ This is as close as the Australian scheme comes to offering employers an incentive payment or bonus. However an employer cannot receive this payment as well as a wage subsidy.

Evidence suggests that such payments may be more attractive to small firms. The *Making It Work* study found a surprisingly high influence from employer subsidies. Of the 546 respondents to this question, 59% said they had used financial subsidies; 51% of these said the subsidy was important to their decision to employ a person with a disability. The preponderance of small firms in this study may add indirect weight to the hypothesis that small firms are more likely to be responsive to such financial subsidies.⁹⁰ The SWS Review found, however, that most employers did not remember if they had received this payment.

There are several schemes for on the *job training and support* available to employers who know to access them. Some are available though the *Job*

⁸⁸ De Jonge *op cit.*

⁸⁹ Supported Wages System Review *op cit.*, 38.

⁹⁰ Making It Work (2001) *op cit.*, Part 1, 51.

Network while others are available through the *Commonwealth Rehabilitation Service* (CRS).

One innovative Australian scheme is the *Special Employment Placement Officer* (SEPO) program. This unusual initiative was introduced in 1992 following trials undertaken by the *Commonwealth Rehabilitation Service* (CRS) in South Australia. The SEPO is an officer recruited by a company who becomes part of the management structure. However his or her salary is paid by the Commonwealth. Once inside the organisation the SEPO helps develop and implement company policies on employing people with disabilities, and also works from within to identify job vacancies suitable for people with a disability. Placements are then organised through the existing network of funded placement agencies, such as the *Commonwealth Rehabilitation Service*.

No proper evaluation of the scheme has been published. The role given to the SEPO in each organisation differs substantially. Companies that have participated in the program include Qantas airline, Telstra, IBM, National Australia Bank, Westpac Bank and the University of Technology, Sydney. It is an innovative approach that has the possibility of cultural change in the organisations involved. It is however restricted to large organisations.

Finally we note that the *Prime Minister's Employer of the Year Awards* are given to employers in various categories who have demonstrated outstanding commitment to the employment of people with a disability. Criteria include initiatives taken to help staff with disabilities in the workplace, their level of integration into the business, their length of employment and the payment of award wages. The Awards began in 1990.

What other options are available to the Australian Government, to encourage employers to employ more people with disabilities? One possibility that has

not been tried in Australia is for the government to use its influence both as an employer and as a purchaser of goods and services. This has long been a feature of the system in the USA, through the *Rehabilitation Act of 1973*. In the USA government bodies and companies receiving government funds must not discriminate against people with disabilities, and those with more than 50 staff must adopt affirmative action programs. The *Rehabilitation Act of 1973* had a strong impact on employers in the USA well before the ADA. It could be argued that employment gains for people with disabilities arose from the influence of the *Rehabilitation Act of 1973* and not from the ADA.

Even a process of asking companies seeking Government contracts to provide information on the numbers (and positions and wages) of employees with a disability would serve as a consciousness-raising exercise. It could be extended to a system of preference, over time. Contract compliance provides a direct, unambiguous financial incentive for employers (in the form of government payments or contracts) rather than a reliance on legal sanctions.

One of the main problems with current policies aimed at employers is a chronic lack of publicity. There seems little doubt that many if not most employers are not aware of the government assistance programs available to them. The up-front cash payment, for example, would be hardly known among small businesses who would be most likely to be influenced by it. The SWS review noted that most people are not aware of the scheme.⁹¹ These and other policies could be more effective if they were better known.

Government web sites that give individuals information on their benefits and entitlements (such as *Centrelink* or *Department of Family and Community Services*) have no information for employers regarding the subsidies and other benefits available to them. This should be rectified urgently.

⁹¹ Supported Wages System Review *op cit.*, 38.

We note once again the omission of effective policies that would give employers information and support in the process of making accommodations for workers with disabilities. This lack is most critical in the area of computer access technology.

POLICIES TO ENCOURAGE THE CONTINUITY AND DEVELOPMENT OF SUCCESSFUL EMPLOYMENT OUTCOMES

To some extent employers and their staff with disabilities will work out their own relationship together once the establishment phase is concluded. However the very absence of government policies and programs at this point begs the question: are there supportive policies that could assist maturing employment relationships?

One issue that is of obvious concern to governments is the tendency for firms to locate people with disabilities in low-level jobs, without prospects for growth and advancement. We saw earlier in the Garity case⁹² how employers can fall into the trap of thinking any job is better than no job for a person with a disability; the Commissioner regarded this as discrimination. Alterations to the DDA to emphasise *reasonable accommodation* should also make provision for that requirement to apply throughout the person's working life with that company.

The key issue for the continuity and development of employment relationships involving a person with a physical disability is *productivity*. A person's growth in the firm will depend on their capacity to increase their productivity. As discussed earlier, this involves the workplace itself, not just the worker. Advice for employers on job design, technology, work practices and training should be available, not just at the commencement of the

⁹² Sally Garity and the Commonwealth Bank of Australia, Human Rights and Equal Opportunity Commission, 25 January 1999, No. H97/191, Commissioner R. Nettlefold.

employment relationship but also at various stages along the journey. This is crucial in a context of frequent company restructuring, re-organisation and changes in technology. The individual's disabilities are unlikely to be static also. Ageing alone affects the functional capacities of those with cerebral palsy and spinal injury. There is a strong case for workplace modification funds to be available again at future times when required by the employer or the employee.

Of special relevance for those with physical disabilities such as quadriplegia will be available support in the area of computer technology. This need not apply only at times of change in the work or the organisation. This technology is itself changing and developing rapidly, so that advances in this area by themselves can offer increased productivity to the workers and greater security and prospects for their future employment.

Conclusions

Policies to encourage the employment of people with disabilities in Australia have themselves a heritage of disadvantage. Very little guidance has been provided by the academic community. Even key policy issues with seemingly wider economic and industrial relations significance have passed without academic comment or scrutiny. The government has had to commission its own reports from academic specialists, and these reports have strongly influenced subsequent policies.

A major deficiency in the Australian setting has been the weakness and incoherence of the disability sector. There has been no significant Disability Movement in Australia. In the area of employment there has been no "coming out" as occurred in the USA following the *Rehabilitation Act of 1973*.

The employment of people with disabilities is a prominent issue in the USA; this is not the case in Australia.

These problems have combined to produce a disability employment policy characterised by naive idealism. This is most clearly evident in the way in which it is assumed that *reimbursement of expenses* will somehow translate into an *incentive* for employers to recruit people with disabilities. The reluctance of employers to employ people with disabilities has been consistently under-estimated, as has been the need for direct inducements or incentives. For example, there is a suggestion that up-front cash payments could be influential for small businesses. This cannot be verified until the current program is given adequate publicity and the views of small business employers sought. But there is anecdotal evidence that some employers use the funds available through the *Workplace Modifications* program as a form of cash bonus. To do this, however, requires some intimate involvement with and knowledge of the system.

The strong desire to *be seen to be doing something* has created policies in which quantity strongly outweighs quality. The lack of an adequate model or framework to guide policy has been a serious problem. In particular, the failure to incorporate economic insights has led to policies and programs that sometimes compete with one another, or produce unanticipated results.

In the search for signposts and guidelines, the government has commissioned its own reports around which policy responses have clustered. However, as we have seen, commissioning its own academic evaluation or research has its own dangers for government.

At its core our disability employment policy has no model, no coherence, no vision. It is a grab-bag of isolated policies that fail to work in harmony. One of the key criticisms made by *Working Solution* was that policy was not based on adequate data. This is a fundamental problem that still persists.

Governments still drive the disability policy vehicle by staring out of the rear view mirror. The NIMS database gives us some information on funded services, but this is only part of the picture.⁹³

Even the flagship *Disability Discrimination Act* has been a great disappointment. Like its American counterpart, it may even be having a negative impact on the employment of people with disabilities. Unlike the ADA, our legislation has failed to become a major topic of interest in the community and among employers. Introducing the term “reasonable accommodation” would at least arouse interest in the legislation. The DDA embodies a social and legal view of discrimination, and not an economic one. It fails to deal with the economic realities facing employers.

Perhaps of greater importance is the lack of an information resource service (such as the *Job Accommodation Network*). Computer adaptations are a major source of enquiries to the *JAN*, and form a major area of ignorance for Australian employers.

We can mention also that Australian employers are heavily reliant on job placement agencies for information on matters of workplace accommodations and the placement of people with disabilities in general. Yet what information is available suggests that employers have major criticisms of these services, in terms of the services provided, as well as their approach and professionalism. Employers often find that job placement staff have a limited grasp of business realities. People with disabilities also rely extensively on these services, and they too have often been let down. The

⁹³ Some recent data shows a dramatic increase in the number of unemployed who are incapacitated but who don't count in the disability statistics. They have grown from 5.5% of the unemployed in 1993 to 9.6% in 1999, with a total number of 63,150. A third have episodes of incapacity that last more than 6 months. This growth does not appear to be linked to policy changes. See Warburton M. et al., “Incapacity among unemployed customers: a statistical analysis” *Australian Social Policy* 1999/2, 75-90.

system of advice, training and support is cumbersome and confusing for them.

The failure of the government even to promote its own policies with any sincerity betrays a tragic lack of commitment to this issue. It is little wonder that we have seen no improvement in the employment of people with disabilities over the past decade. This is a clear example of policy failure.

It could be argued in the end that governments reflect the people they represent. The employment of people with disabilities is accepted as a welfare issue in Australia. Policies have not been shaped by social movements or economic policies. The welfare approach colours the current policy mix in Australia and goes some way towards explaining the omission of effective policies in the area of productivity-enhancing assistive technologies such as computers. The welfare approach also draws from the pedigree of past employment practices for people with disabilities, in particular sheltered workshops. The heavy emphasis on measuring the productivity of disabled workers draws from the heritage of that period.

The resistance of parent-controlled charities to these changes could be seen by some as an unswerving loyalty to the welfare approach, yet many of those who deal with people with profound disabilities felt left out by the recent emphasis on employment that initially seemed to offer no alternative to those with severe disabilities.⁹⁴ Not all people with disabilities are employable.

Even so it is true that the current set of government policies largely favour those with intellectual/learning disabilities. For instance, only 12.4% of those in the *Supported Wages System* have a physical disability. Programs such as the SWS are “best suited to individuals whose disability has a consistent impact on their productive capacity and who are in types of employment

⁹⁴ See Trowbridge R., “Disability and productive employment: A Prediction of failure and a proposal for change” *Australian Journal of Social Issues* 1993 28/1.

where productive capacity is easily measured".⁹⁵ These programs have been slow to adapt to white collar employment and the age of information technology.

Finally we note with disappointment the omission of policies to link modern technology to the employment needs of people with disabilities. New technology changes the world for people with physical disabilities. But in Australia there is little research, minimal information for employers, and almost begrudging assistance to individuals. The failure of governments in Australia to embrace the potential of new technology to enhance the productivity of people with disabilities is inexplicable. Assistive technology at best has been seen as a means of restoring individual function, not as increasing productivity.

One only has to peruse the *Assistive Technology Act of 1998* to recognise how remiss Australian policy has been in the area of assistive technology, including assistive computer technology. The new Act renews the commitment to this area first promulgated in the *Technology-Related Assistance for Individuals with Disabilities Act of 1988*. Its purpose is to finance each State to develop "a permanent comprehensive state-wide program of technology-related assistance for individuals with disabilities of all ages". These programs include public awareness, advice, training, technical assistance, outreach and partnerships with private industry. The inspiration of this legislation and its scope can be contrasted emphatically with the dithering approach to this issue as it is fumbled between the Commonwealth and the States in Australia.

It is time now to explore these issues in the real life experiences of six individuals, in the case studies that follow.

⁹⁵ Supported Wages System Review *op cit.*, 1.

CHAPTER SIX

CASE STUDIES

Introduction

Policy and practice do not always concur. In this section we examine the employment journeys of six individuals with quadriplegia. Our aim is to evaluate the importance of computer access and computer skills in various parts of the employment process. Do such skills encourage an individual to seek employment? Do they open up certain types of employment options for people with quadriplegia? Does the presence of such skills encourage employers to employ people with disabilities? Does the continuing development of computer skills help in some way to sustain and enrich the person's position? Do Government policies favour or hinder the acquisition of work-related computer skills?

In making such an evaluation the aim will be to compare the impact of computer technology with the impact of other factors, many of which have been discussed in this study. We may also be able to make an overall assessment of the role of computer technology in the employment process for people with physical disabilities, and the implications of this for government policy.

A case study methodology¹ has been chosen as the most appropriate tool for this part of the research. We are looking to understand a process, and detailed case studies will give more precise answers to our questions than would, for example, a survey. The end result will be the development or

¹ See Yin R., Case Study Research – Design and Methods 1984, 2nd Edition, Sage, California.

refinement of theoretical propositions that at this stage can only be outlined. Further research may then confirm or amend these conclusions.

Methodology

Six people were included in the research. Three have spastic quadriplegia and three have quadriplegia resulting from spinal injury. Their ages range from 20 to 51. They all use computers.

Potential participants were nominated (with the permission of the individuals concerned) by disability organisations covering the two disability types. These six were selected from that list and invited to participate in the study. They were chosen as people in various stages of the employment process and in a variety of employment circumstances. Six was deemed a sufficient number to cover the two types of quadriplegia and a mix of genders, as well as a range of different employment circumstances, but sufficiently small to be suited to the case study methodology.

None of the participants were in government employment or working for funded disability organisations (the reasons for this were discussed in Chapter One). None of the participants were employed in large organisations, and this is a limitation of the study. One potential participant worked in a large private organisation, but the employer did not agree to be interviewed. However much of the literature suggests that large organisations are more likely to employ people with disabilities; much less is known about the situation in small organisations, thus making them a worthwhile focus in a study such as this.

Detailed focused interviews² were conducted with each person. Time was spent building rapport with the individuals and listening to their accounts of their employment journey. Items on the prepared list of issues that were not

² See Yin *op cit.*, 84.

addressed in the flow of conversation were followed up specifically at the end. In some cases, with the permission of the interviewees, further interviews were conducted with employers or rehabilitation support staff. These provided additional information and, in several cases, a different perspective. In the case of employers, of course, their perspectives were of equal importance to the study as those of the employees.

The reports on the case studies describe the background and key events in each person's employment journey. They are then analysed in terms of the framework developed in Chapter 3. The names of all participants and organisations have been changed to preserve confidentiality.

ADAM

GENERAL BACKGROUND

Adam is a 51 year old male with spastic quadriplegia. He mobilises independently with an awkward, shuffling gait. His upper limb function is impaired (for example, his grasp of a cup is very awkward and his writing is very slow and limited). His speech is comprehensible to those who know him, but is difficult to understand by those who don't know him.

In spite of these difficulties Adam lives independently. He is able to drive a modified motor vehicle, prepare his own food and manage his own life. He has personal drive and a strong self belief.

He has completed an Associate Diploma in Business and Information Technology through TAFE (NSW).

EDUCATION AND EMPLOYMENT BACKGROUND

As an 18 year old Adam started a Radio Trade Course at Ultimo TAFE, but did not complete it because he "didn't have enough maths". He then

worked at a sheltered workshop doing processing work for 3 years, followed by a year doing electronics (something he always had a passion for, in spite of his impaired hand function).

Adam then obtained a job with a major electronics company. The job only lasted 8 months; he had a fall at work and he believes this was the reason he was “put off”. He returned to a sheltered workshop, doing electronics testing and also accounts/data processing. This continued for 5 years.

He was still very keen to obtain open employment. He sat for Commonwealth Public Service Entrance Exam and passed. He obtained a clerical position in a government department but it was a temporary position, without any guarantee of permanency. He was dismissed after 2 years, without any explanation being offered.

Adam decided his best chance of obtaining open employment was to increase his qualifications. He commenced the Certificate in Office Supervision and Certificate in Data Processing at TAFE. He also did some private contract electrical work.

An opportunity came to do a database project arranged through a local TAFE. This work lasted for almost a year and further aroused his interest in computers. However once again he was forced to return to sheltered employment for another 2 years.

He studied full-time and completed an Associate Diploma in Business and Information Technology. After this he tried to get a position as a programmer. “People liked my resume but got turned off when they heard my voice.”

THE PROCESS OF OBTAINING EMPLOYMENT

Adam did not secure this employment through the assistance of employment placement agencies, although they quickly arrived on the scene once employer interest had been established. Adam initiated the encounter by writing a job application himself. He became aware of the firm, a small computer company, through a friend.

The manager of the company, Mr Brown, explained that there was not actually a vacant position in the organisation at the time. "Our work was growing, but we weren't looking for a new person at the time." However he stated that Adam's application interested him. "The fact that he had qualifications meant that he had skills we could probably use. I at least wanted the opportunity to meet with him."

This company, and the manager, have employed people with disabilities before. They had administrative staff with spina bifida and hemiplegia from a stroke. These employees were no longer with the company, but the manager regarded their employment as "quite successful".

The employer was impressed with Adam, who presented as a person with some technical repair skills. Other staff also found him interesting and were supportive of his possible employment. However the manager was unable to offer him employment at once. He wanted the opportunity to "see him on the job" before making up his mind. "I wasn't sure. And I didn't want to muck him around by taking him on and then having to put him off later."

At this stage the employment placement agency offered three inducements:

1. A month's work trial, during which a small government payment was made directly to Adam. There was no cost to the employer.

2. If employment proceeded, then a wage subsidy would be paid for several months. This amount had to be claimed back periodically by the employer.
3. An amount for equipment. An adjustable desk, fax and scanner were purchased under this scheme. Their total value was around \$1500.

The manager, Mr Brown, regarded these subsidies as “re-assurances” rather than decisive elements of the process. “The challenge was to find productive employment for Adam. We could not afford to maintain his employment, subsidy or no subsidy, if Adam couldn't contribute to the company in some way. I couldn't afford to pay him just to be there!”

Anti-discrimination legislation was not a factor in Adam gaining employment.

INITIAL EMPLOYMENT

Adam commenced at two days per week at ABC. His salary was set at \$10 per hour after a brief “productivity assessment” conducted by the employment placement agency. The Supported Wage System is linked to award wages only. Although the Clerks Award was used, it was a “fictitious exercise” according to the employer. The staff from the employment placement agency were at a loss to know what to do in measuring the productivity of a non-award employee doing work that couldn't be broken down easily into standard components.

Post placement support visits were arranged sporadically by the employment placement agency during the first year. These were rather “ceremonial” according to Mr Brown. “They didn't seem to know much about the business.”

The manager made it clear to Adam that there was a need to find productive work for him as soon as possible. The repair work was sporadic - certainly not enough to sustain Adam's employment. Some other area of work had to be found, or else the job was in jeopardy. "I was very honest with Adam about what was at stake" the Manager stated.

A new area of work was discovered almost by accident. The manager noticed in conversation that Adam had a good eye for bargains when it came to buying computer components for himself. It was a skill Mr Brown thought the company could use. "Adam was a bit of a hustler" he noticed. So a job was designed in which Adam would track down buying arrangements with suppliers, look around for the best prices and prepare orders (to be processed by administrative staff at another location) for customers' computer systems. Adam had the technical knowledge that that administrative staff lacked, so the manager hoped that the job would be viable.

Using a computer was vital for this work. Adam had computer skills but was slow at mouse functions and keyboard entry. The advice of an outside agency was sought regarding alternatives. A trackball was recommended, as well as some repositioning of Adam's desktop devices. The result was a gain in productivity, sufficient to do this new work.

Adam's feelings about this work were extremely positive. "I was very excited."

DEVELOPING THE JOB

A hitch came when it was decided to consolidate the business at a new location that was not accessible to Adam. Assistance was sought from the government once again, to share in the cost of building a ramp, level

pathway and handrail. The alternative was that Adam's job was in jeopardy. "We had no alternative but to move" said the manager.

Fortunately additional dollars were found through the Workplace Modifications program. As only \$1,500 was spent previously under this program, an amount of \$3,500 was left to put towards the cost of these modifications. The employer also contributed to the cost. "Without that contribution from the government I believe Adam's job would have finished. They saved the day."

A further change came when the company's technical officer resigned in May 2000. He had been responsible for the company's web site. Another person was contracted to hold things together for a few months. During this time Adam approached his boss and suggested that he could do this job. The manager liked the idea. "His timing was perfect. I didn't think of him at first, but then he told me he knew some HTML. It was work that I was sure Adam could do."

Adam recalled his feelings at the time. "I'm on my way now!"

The two components of Adam's job meant that he now had a more secure employment relationship.

Adam's hours had already been increased when the technical officer left. He was doing 3 days per week. With the new work he increased further to 4 days a week, but soon returned to 3 days. "There was nothing in it for me financially." He ended up with only a few dollars extra a week because of the loss of disability pension involved.

THE CURRENT SITUATION

Adam's position is permanent part-time (3 days per week). He is a Technical Officer with ABC Computers, a small private firm with five other staff. The

company provides a range of computer services to customers, including computer systems, peripheral devices, training and support.

His current duties include maintaining the company's web site and checking with suppliers to prepare orders for computer systems. He uses a computer in virtually all of his work, and now spends a lot of time on the Internet.

Most recently Adam's pay was increased to over \$13 per hour, a considerable increase from his commencement salary. His boss remarked: "He is a good reliable employee and he has a real job, not a pretend job. That means he has a secure job - as far as I can see, anyway."

Adam expressed great contentment at this job. He feels his self esteem has increased enormously. "Finally I'm feeling like an employed single man" he said with a smile.

He can work from home on occasions, but prefers the social interaction associated with coming to work.

Adam has been with this company since March 1996. In that time his duties have developed, his level of responsibility has risen and his pay has increased about 30%. Both Adam and the company he works for are pleased with his employment. In all respects this is a successful employment outcome.

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

In Adam's case we can observe he had tremendous tenacity in seeking employment. He showed great drive in his desire to find a job, in spite of several setbacks. His passion for electrical work did not provide him with genuine employment opportunities, apart from a brief foray into self employment. His diminished dexterity and communication skills meant he

would always be at a serious disadvantage in straight clerical work. Computer skills eventually gave him the means to become productive at work.

2. What was the role of computer technology in the person's becoming job ready?

Adam did not receive assistance from a job placement agency in preparing himself for this employment, although they had assisted him before in his search for employment. Adam had decided himself to obtain computer qualifications so he could get work in an area where his interests lay. But there is no doubt that computer skills increased Adam's job readiness.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

There were a number of factors favourable to this employer's decision to take on Adam. The employer had previously employed people with disabilities. The employer also seemed prepared to make adjustments to the design of Adam's job. The trial period also helped to give the employer a "try before you buy" option. Government subsidies in this case seemed to be treated largely as a bonus payment for the employer.

Job placement agencies and anti-discrimination legislation appeared to play no role. Although the Supported Wages System was used, it seemed more a case of the employer and employee agreeing on a wage, and then the SWS system formalising the arrangement by a pretend connection to an award. Its role was therefore neutral in this case.

On the other hand we know that employing a person with a disability is more onerous for a small firm than for a large firm.

From the employer's comments on this matter it appears that it was Adam's computer qualifications that clinched the employment opportunity for

Adam. It wasn't the only factor, but it was decisive. Adam's initial role involved considerable Internet work, and this minimised the extent to which he had to handle paper.

4. What has been the role of computer technology in the career development of this person?

This case was interesting in that two significant changes occurred, one a threat and one an opportunity, in a short period. The relocation threatened to subvert Adam's still fledgling employment, and in this situation some government funding had an unexpected role in preserving his employment. Business relocation and restructuring are commonplace these days, so Adam's predicament was no oddity. In this case, fortunately, Adam's employment survived.

The opportunity arose when a role became available following the resignation of another staff member. Adam showed considerable initiative in volunteering to undertake this work. In the end this new work has strengthened his position in the firm. Again, his IT training provided him with the necessary skills to undertake the role and to persuade the employer to give him a chance.

Other factors strengthening Adam's role in the firm included his acceptance by other members of the small workgroup.

LEANNE

GENERAL BACKGROUND

Leanne is in her early 40s. She suffered an accident when she was 31 that left her a C5/6 quadriplegic: in her case this means she relies on a wheelchair for mobility, and has shoulder movement, some useful movement in both biceps and slight forearm movement, but no hand or finger movement. She has slightly more strength in her right (dominant) upper limb.

EDUCATION AND EMPLOYMENT BACKGROUND

Leanne has a BA, a Diploma in Communication and marketing and had just completed her MBA at the time of her accident. She had worked for 7-8 years in marketing and had become assistant manager of a medium size public relations company. Her career prospects were very strong. She worked long hours and enjoyed her work very much. She was devastated by her injuries and disabilities.

THE PROCESS OF RETURNING TO EMPLOYMENT

Leanne underwent extensive rehabilitation, which meant she was unable to return to work until 18 months after her accident.

She received very little support, apart from physiotherapy, that she found helpful. Many of the therapists she felt had an attitude problem: "They've got GOVERNMENT written all over their faces". She resented being pressured into activities such as wheelchair sports that held no interest for her. She felt like she was being put into a box, given a disability label: "I didn't want to go that way".

Some of her friends arranged a copy of *Dragon Dictate* speech recognition software for her, but the support and training were lacking. She found it extremely frustrating. I asked her if, looking back, she was able to return to

work with effective computer skills, would that have made any difference. She felt confident that it would have made a big difference, in terms of new opportunities such as the Internet, and also in terms of productivity.

INITIAL POST-ACCIDENT EMPLOYMENT

Leanne initially returned to work for a short period of 4 months, bringing her own support person with her. She then went overseas for a few months for specialised medical treatment.

Upon her return she went back to work, undertaking a new role for the company. Her job was to do background research on potential new clients. It was a useful role, even though she wasn't generating paid hours for the company. She was determined to make a contribution to the firm, and she felt there was goodwill there. However she knew she wasn't going to be able to undertake the 12 hour shifts and extensive travel she used to do in her work.

A few months later she was given the role of managing staff training. She prepared and analysed staff and client surveys. This role continued for around four years.

Leanne was keen to resume work with the company. But it was obvious the process was not an easy one for her. While staff were supportive, they knew very little about the disabilities she had to contend with. She too was learning how to deal with her new circumstances. She felt extremely frustrated that she was unable to continue the high-flying role she had previously: "At times I would just hide in my office".

Self worth was an important issue for her. "I worked hard without direction." In particular she felt she needed a public acknowledgement of her role from the CEO, some feedback on what she was doing. Instead there was an unstated expectation that she would "get back to normal".

Leanne was not impressed with the involvement of the *Commonwealth Rehabilitation Service* during her initial return to work. Although the person who worked with her was pleasant, Leanne described her as under-qualified and not ready to assist someone like her, in a management capacity.

The company was keen to have Leanne return to work. Their role was made easier from a financial point of view by the fact that the firm had income protection insurance for senior staff. All the company had to do was top up the difference between the insurance payments and Leanne's former salary. However Leanne had to pay (through her salary package) for her own support person. During this period Leanne worked three days per week. She could work from home occasionally.

Leanne believes what would have been helpful in that early period was someone to act as a mentor or advocate, someone who could have explained her situation to management and staff, and have made helpful, informed suggestions to her and her work colleagues.

DEVELOPING THE JOB

After about four years after she returned to work Leanne was asked to take on a new role in the company for a three month period. The role provided an opportunity to get back into the account managing work she had prior to the accident. Leanne described herself then as "still trying to be dynamic". She did the role, during which time her CEO remarked: "Now you can get back to a proper job!" But Leanne drew different conclusions from her experience. She realised that she was never going to be able to the work she used to do. Her priorities were changing.

Six months later she changed her role to that of a consultant. She started her own company, and kept her previous employer as a client. This meant she

mostly worked from home. A year later the company changed hands, the CEO left and Leanne's involvement with the company ended.

At no stage during this period did she seek the involvement of the CRS or other government agency. This was because of her earlier, poor experiences with the disability sector. However computer technology was an integral part of her work, alongside one-to-one communication and the telephone.

CURRENT SITUATION

Leanne still undertakes some consultancy projects from home. However she has become more involved in several voluntary capacities in the disability field. Her commitment to the paid workforce has diminished.

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

Leanne's return to work was the result of the strong expectations of her employer and herself. The firm for which she worked prior to her accident wished to protect the investment they had made in her. She was one of their high flyers.

For her part, her self worth was tied up in her work. She wanted to resume the career that meant so much to her. In terms of personal adjustment, Leanne agrees that she was not prepared well for what lay ahead for her at work.

2. What was the role of computer technology in the person's becoming job ready?

Looking back, Leanne now believes some well-tuned computer skills may have assisted her to resume her work more comfortably and productively.

Very few other steps were taken to prepare Leanne for a return to work. It appears that rehabilitation services are not well equipped to deal with the needs of professional and managerial clients. In Leanne's case, poor early experiences with the CRS meant she did not turn to them subsequently when their role may have been helpful.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

The overriding motivation for the employer in this case was to get one of their valuable team back on the job. This is a very different situation from that where a person is seeking work with a new employer.

However the employer naively assumed that Leanne would get "back to normal". They took no steps to bolster her productivity through computer technology. They were completely unaware of alternative computer access methods.

4. What has been the role of computer technology in the career development of this person?

Technology provided a productive pathway for Leanne to continue working for the company. For example, her ability to use email meant she could work productively from home in full communication with the office. It gave practical expression to her work capacities. Her likely role would have been greatly diminished without the presence of computer technology.

It is difficult to gauge the impact of Leanne's income protection insurance payments. It is likely in this case that they mattered relatively little. It is likely the company would have paid for Leanne anyway, due to her senior role in the company prior to her accident.

BRIAN

GENERAL BACKGROUND

Brian is a 33 year old male with C5 quadriplegia, resulting from a swimming accident 8 years previously. He underwent about 8 months of rehabilitation before returning home to his family (parents and siblings).

He spent the next five years dealing with a lot of anger and resentment. He was bored and spent a lot of time watching TV. When he came through this period he wrote several children's books that were published. He used speech recognition technology to undertake this task. He had well developed computer skills prior to his accident. He can type with one knuckle and uses a trackball for mouse functions.

EDUCATION AND EMPLOYMENT BACKGROUND

Brian had completed a Bachelor of Business prior to his accident. He had a management role in an import and export business. His work involved using programs such as *Lotus 123* and *WordPerfect*.

THE PROCESS OF OBTAINING EMPLOYMENT

After Brian completed his rehabilitation he was approached by his employer to take up his previous work. However Brian declined this invitation. He didn't believe he would be able to perform the tasks he previously undertook. Travel would have also been onerous. No advice was sought by either party on his possible re-employment.

Brian described some involvement with the *Commonwealth Rehabilitation Service* at this time. He portrayed them as "too cumbersome and too bureaucratic". He also felt they didn't understand the difficulties he was facing. "They tried to lead you." The best job offer they found for him was to

answer telephones at the local TAB. He felt this was “demeaning”, although he felt “selfish” for rejecting the offer that had been made.

The other problem was the loss of benefits that such a job would have entailed. He would lose pension, rebates and would have to pay for Home Care services. Although he remarked that he hadn’t done the sums recently, he remembered calculating once that he would need to earn about \$45,000 p.a. to be in front after the loss of benefits was taken into account.

He wanted to have “a job where my disability wasn’t an impediment, even if I wasn’t as fast”.

Brian described himself as a person who would rather find things out for himself. He suggested that his loss of physical control has made it more important for him to have more control over other aspects of his life. With regard to his equipment and other needs he gets information from the Internet, as well as groups like the *Independent Living Centre* and *Paraquad*. He has not sought expert advice on computer access alternatives, but has asked others who use the equipment. He would however have liked there to be a central source of information about high tech equipment such as computers and environmental control systems.

After his books were published Brian had more confidence in his own capacities and skills. The opportunity for work came unexpectedly. A mutual friend put Brian in touch with a business person who required someone to update information from the Internet on a daily basis. Brian was to work from home. After three weeks of training Brian commenced the work that he has been doing for almost 12 months.

INITIAL EMPLOYMENT

The person for whom Brian works did not want to take him on as an employee. Instead Brian had to set up a company. His company earns about

\$25,000 p.a. and Brian is paid a wage from this. He can purchase much of his equipment through the company. His wage is not large enough for him to lose his benefits.

Brian works 35-40 hours a week, spread over 7 days. He works from home. He has a couple of long days (6-7 hours) with the rest being 2-3 hours. This arrangement gives him the opportunity to manage his own work arrangements, to take account of spasm and soreness. He estimates that an able-bodied person could do the work in 25-30 hours. But much of the work time involves waiting for information to download.

The work is Internet-based and required someone who could work reliably 7 days a week. The arrangement suits Brian.

DEVELOPING THE JOB

There is little personal contact between Brian and the person who purchases his services. But both parties appear to be happy with the arrangement. The work has endured for 12 months.

CURRENT SITUATION

Recently Brian has suffered from soreness in his shoulder from using the trackball. He has just purchased an alternative device (*Track IR AT*) to assist with mouse functions.

He feels the work requires mental stamina, which is a quality he believes his disability has given him. He comments that he can now answer when people ask: *What do you do?*

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

Brian had pre-existing computer skills. He wanted to work from the beginning, but was unable to find work that wasn't demeaning for him. Without computer skills he wouldn't have even started to look for work.

2. What was the role of computer technology in the person's becoming job ready?

The process of using speech recognition to write children's stories gave Brian confidence in his abilities.

In his case the CRS was not helpful. They were "trying too hard" in the sense that they thought any job was better than none. The job they eventually found for him was well below his capabilities.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

The employer in this case was satisfied that Brian was capable of doing the work. This was largely because of Brian's computer skills and knowledge. His lack of mobility actually worked in his favour.

4. What has been the role of computer technology in the career development of this person?

It is still quite early in Brian's work journey. Nevertheless his productivity and reliability have made this a positive working relationship to this stage.

COLIN

GENERAL BACKGROUND

Colin is a 41 year old male with C4/5 quadriplegia: in his case, this means he requires a wheelchair for mobility and has a small amount of shoulder movement. His accident occurred in 1979, just after he had completed his HSC. He uses a motorised wheelchair and has impaired hand function.

He had a fairly extensive period of rehabilitation before moving home for 3 years and then into a lodge with other people with quadriplegia for 5 years. He lost interest in study and employment, spending most of his time socialising.

During this period he met his future wife, and they were married in 1988. At that time things began to change for Colin. He described how he felt bored each day when his wife went to work. He began to explore options for study and possible employment. He commenced a university course by distance education.

Colin had used computers since his *Amstrad* back in 1985-6. He types with one knuckle and can use a small trackball.

EDUCATION AND EMPLOYMENT BACKGROUND

In 1990 Colin started a distance education course leading to a Bachelor of Business degree. The study took 7 years in total. He majored in accounting. He had never been employed prior to commencing his current position.

THE PROCESS OF OBTAINING EMPLOYMENT

Before Colin had finished the course his wife became pregnant with their first child. Soon they were all living on pension income. The economic incentives for Colin to find work became very strong.

Two years before completing his degree Colin approached the *Commonwealth Rehabilitation Service* for assistance in finding employment. They approached XYZ Accountants, a small firm located near his home, regarding possible work experience. The manager of the company did not know Colin, but they had “seen him around”. They agreed to the trial, and the work experience took place over 3-4 months. The manager stated there was still “a little bit of doubt” after the work experience, but they decided to offer Colin a job. They had never employed a person with a disability before.

Both Colin and the employer spoke highly of the involvement of the CRS. Government wage subsidies were arranged, as well as workplace modification funding for a ramp and a computer. Regarding this funding the employer said: “It takes a bit of the risk out of it”.

But while the funding was a factor in Colin’s employment, the most important factor from the employer’s perspective was that Colin had qualifications for the job. As regards the computer: “It’s essential. It’s his only method of doing his work”.

INITIAL EMPLOYMENT

Colin works as part of a small team of four accountants. He works 2-3 days per week. He estimates that 80% of his work involves a computer. His computer knowledge exceeds that of his fellow accountants: “He tells us things about the computer”. Colin also appreciates the role of a computer in his work: “I wouldn’t be productive enough without it”.

Both Colin and his employer agree that Colin needs some assistance to complete his work. “We have to help him.” Paper handling and filling out forms, in particular, require assistance from the office secretary. His capabilities dictate to a certain extent the type of work Colin is given.

Colin estimated that he was 75% as productive as an able-bodied person doing the same work; interestingly, his employer independently estimated Colin's productivity at 80-90%.

Convenience has been important for Colin – he lives just 10 minutes from work and journeys by wheelchair. Thus he avoids the major problem transport can be for many people in Colin's situation.

DEVELOPING THE JOB

A small organisation has permitted flexibility in arranging the work for Colin. The influence of the CRS and government subsidies has diminished as the role has matured.

Fellow workers have been very supportive and accepting. "No real [negative] reaction" said his employer, in a pleasing manner.

His employer feels the most important factor in Colin's continuing productive work has been his computer skills. His skills in that area have grown and he finds more and more uses for the computer in his work. Colin uses *Excel* instead of a calculator or notepad.

Neither Colin nor his employer has received any advice regarding computer access alternatives. His employer confessed complete ignorance regarding computer input options, and left that to Colin to work out. Colin is unaware of where to get advice on such matters and has done his best to find alternatives by himself. For example, he has found a small trackball but even with this he is unable to perform drag functions. He has a speaker phone and a headset phone.

CURRENT SITUATION

Colin's work has expanded in scope and responsibility over the 5 years of his involvement with XYZ. He receives a higher salary. He is on an equal

footing with the other accountants in the firm. His employer commented: "He handles responsibility well".

His main concern is spinal degeneration, which may reduce his capabilities in the future. He is exploring speech recognition as a possible option.

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

There were two strong personal factors that inspired Colin's decision to seek employment. First, he became bored at home when his wife went to work. Second, an economic imperative arose when they had their first child.

While computer skills may not have inspired Colin's decision to seek employment, they provided the *means* for him seek favourable education and employment outcomes. His computer competence gave him self-belief. Without this he may have never have taken this first step.

2. What was the role of computer technology in the person's becoming job ready?

The role of computers appears to have been crucial in shaping Colin's job readiness. By the time Colin was ready to approach XYZ to obtain work experience, he had both computer skills and accounting skills. His computer skills had enabled him to study and gain relevant qualifications. This combined competence convinced the employer to offer him a work trial. Soon afterwards this developed into a permanent position.

The CRS in this case provided a helpful service, with both Colin and the employer speaking highly of their services.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

Colin's professional qualifications gave reassurance to the employer. However they knew that a computer was the only means for Colin to bring those qualifications to life. The two were linked.

In addition, Colin's computer skills were a bonus for the company. The firm didn't use computers for more than correspondence at that stage (1994), so Colin's computer skills were attractive to the other staff in the firm. Colin still maintains a margin of computer competence over his colleagues.

In one sense Colin came to the company as a "package" – they got a qualified person and a computer system.

4. What has been the role of computer technology in the career development of this person?

Colin's position has matured with the firm. He has taken on additional responsibility and has received higher income. The manager of the firm said that Colin's position has "evolved". The flexible approach of the employer has been important to Colin's success.

Workgroup acceptance has been important for Colin as well. To this we could add customer acceptance. There has been no attempt to hide Colin or restrict him to roles removed from public gaze.

His computer skills have enabled him to maintain levels of productivity that have secured his position. "Without the computer I wouldn't be productive enough."

KAREN

GENERAL BACKGROUND

Karen is in her early thirties. She has cerebral palsy, although her case is unusual in that it has fluctuating effects on her capabilities. Her speech is generally reasonably good, but can deteriorate unexpectedly. Her upper limb function also varies. She has “seizures” when over-tired (approximately monthly), and these reduce her capabilities considerably for a week or so. She mobilises in a motorised chair with right hand joystick control.

EDUCATION AND EMPLOYMENT BACKGROUND

Karen went to a special school until age 9. She then went to a mainstream school until 15. Up until this time she was living with her family. At the age of 16 she moved to supported accommodation. She studied a few TAFE courses, mainly in welfare.

She went back to school at age 23 in order to obtain her Higher School Certificate (HSC). She was provided with support for the first two years, but not after that. Nevertheless she managed to complete her HSC in 1996. Her choice of subjects was apparently limited by the availability of scribes. She did remarkably well, finishing in the top 10% of students in her English and Maths courses.

She obtained some funding through a disability organisation in 1996 to purchase a computer system. However the computer access methods available to her at the time were quite limited (as were the funds). There was no provision for training or continuing support.

Karen has never been employed. She has been included in this study as an example of someone who obviously has the capability to contribute to the workforce, but has not been able to be supported in that direction.

THE PROCESS OF OBTAINING EMPLOYMENT

A funded employment placement service considered her case in 1998. She was told that work would not be good for her, because of her fatigue. Karen described them as “very protective”.

At the end of 1999 she entered a *Post School Options* program. This involved her living in a supported group accommodation facility, and then attending an activity centre nearby every Thursday. She finds the whole process tedious and boring. She is desperately keen to obtain employment, but she is totally dependent in that process on funded employment placement services. So far she has been unable to persuade them of her employability.

In 2001 Karen attended her “annual review” at the cerebral palsy organisation with which she is associated. She made it clear to them she wanted a job. She was offered a supported employment option, but she rejected this: “I didn’t want to go to a sheltered workshop”.

She was told it was “a long term issue”. They proposed that she go to university, but Karen said she didn’t want to just keep studying. She wants to get a job, to do something with her life.

CURRENT SITUATION

It appears that Karen can attend the post school options program indefinitely (even though this program was designed to steer young people with disabilities through the transition from school to work or further study). She is also attending a local TAFE, undertaking a course in Introductory Computers. She feels powerless, frustrated and angry. But she hasn’t given up hope.

A representative from the employment placement service with which Karen has been involved was interviewed. His view is that Karen has been offered a supported employment place, but has wrongly assumed this is a “sheltered

workshop". Such schemes vary considerably in the skill required of participants. Karen's personal support needs, in their view, make it difficult for them to find isolated positions in industry. The person described Karen as "very strong willed".

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

Karen has had a computer since 1996. But she did not receive training or support in the use of her system (the funding through the disability organisation did not extend that far). She informed me that her needs have changed since 1996, but she is not aware of any avenues available to her to receive advice on newer technology. She lacks the means to pursue this very far herself.

Computers have not realistically played a role in Karen's decision to seek employment. The desire for that is strong within her, in spite of setbacks she has had to face. However she recognises that they provide the only avenue for her to be productive. "What else would I be able to do?"

2. What was the role of computer technology in the person's becoming job ready?

No assistance has been provided for Karen in terms of computer equipment or skills through the employment agency. She has not been assessed formally, and what information she has she has obtained anecdotally from other residents and from informal sources of information.

Nevertheless the question arises: would Karen's job possibilities be improved if she had productive computer capabilities? From the employment agency's perspective, Karen's prospects for open employment have been greatly

impeded by her lack of independence in self care matters. That is why they have suggested supported employment options for her.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

Not applicable.

4. What has been the role of computer technology in the career development of this person?

Not applicable.

ANDREW

GENERAL BACKGROUND

Andrew is a 22 year old male with cerebral palsy. His disabilities affect his upper limb function, mobility (although he can walk independently) and speech, which is difficult to understand. He currently still lives at home, with his parents and two younger brothers.

His typing speed is limited to about 8 words per minute. He is unable to write.

EDUCATION AND EMPLOYMENT BACKGROUND

Andrew completed his Higher School Certificate in 1996 and then did a BA majoring in Creative Writing and History. He has a strong passion to become a writer, with a special interest in comedy.

He recognises that it is not easy for anyone, let alone someone with a disability, to become a professional writer. It is a highly competitive industry. Andrew is also unable to obtain other work to support his writing.

Andrew has achieved some early success. He has been paid for two book reviews he submitted to a metropolitan newspaper. A collection of his comedy sketches made it to the final of a comedy competition. A play he wrote is being performed at an inner city theatre. A collection of poems has been published and sold through a small number of bookshops.

His goal is to be a writer from home. He has positive reasons for wanting to work from home: he wants his work to be treated on its merits, not categorised because of his disability. He does however get lonely at times. He envisages getting out to visit clients when he is more established.

He doesn't write on disability themes although he acknowledges that his disability gives him a unique perspective on life.

He has had a computer for 15 years. At present he has a desktop at home but would like to use a notebook. He finds email “incredibly handy” for networking and communication.

Andrew was once assessed for a communication device, but decided against it. “It would be too slow to use.” At school he used a laptop computer with a special plastic guard that he arranged himself. A scribe was provided for his maths and during exams.

He is independent. “I don’t usually use disability services: they make me more aware that I have one.”

THE PROCESS OF OBTAINING EMPLOYMENT

He approached an employment placement agency for assistance and advice. “I felt I needed more focus. I didn’t know where to begin looking for work.” He described their involvement as “Okay I guess”. They helped in practical ways, like arranging an ABN and a travel allowance. However they don’t have contacts in the writing/arts community. “I find it more useful dealing with other writers and actors than people in disability services. Just because they know about CP doesn’t mean they are useful.”

Andrew receives the Disability Support Pension. The *New Enterprise Incentive Scheme* (NEIS) was considered an option, but Andrew’s view was that the scheme was “not set up for a writer”.

CURRENT SITUATION

Andrew is still hopeful of becoming a writer. He continues to send scripts and promote his work at every opportunity. The only alternative he has considered to writing is designing leaflets for local groups. He is therefore learning desktop publishing. To facilitate this he needed to buy a new joystick mouse device, following advice from a private agency.

ANALYSIS OF THE ROLE OF COMPUTER TECHNOLOGY

1. What role did computer technology play in the person's decision to seek employment?

The computer provides to tool for Andrew to pursue his dream. However the existence of the tool must have had a part in the creation of the dream as well. Without a computer Andrew would never have been able to express himself in writing.

2. What was the role of computer technology in the person's becoming job ready?

This is still a frontier for Andrew. His rate of output is slow and he is keen to find ways of increasing it. However the quality of his writing is more important to him (and to others) than the speed of its production. So while some enhancements to his typing speed would be helpful, they will not be decisive. "I work at my own pace."

Email is of great importance to Andrew. He relies on this extensively, as his disability is invisible to others. He has difficulties on the telephone.

3. What was the relevance of the person's computer skills in the employer's decision to hire this person?

Not applicable.

4. What has been the role of computer technology in the career development of this person?

Not applicable.

Conclusion

These case studies reveal a significant diversity in employment experiences. This variety allows the role of factors influencing the employment of people with physical disabilities to be highlighted from different perspectives.

The main aspects of each person's employment journey are summarised in the following table.

Table 3: Employment Experiences of Case Study Participants

	DISABILITY	CURRENT WORK	SUBSIDIES	AGENCY ROLE
ADAM	CP	Web design, part-time	Yes	Minimal
LEANNE	Spinal	PR from home	No	Negative
BRIAN	Spinal	Internet study, from home	No	Negative
COLIN	Spinal	Accounting, part-time	Yes	Positive
KAREN	CP	Not yet employed	No	Negative
ANDREW	CP	Writing, from home	No	Minimal

Note: CP = Cerebral Palsy

Perhaps the strongest theme is the one least amenable to analysis – the determination and courage of each of the case study participants. But there are other themes that have become prominent through these stories.

THE ROLE OF COMPUTER TECHNOLOGY IN THE DECISION TO SEEK EMPLOYMENT

Each person in this study has a strong desire to work. So strong and persistent is this desire that it has carried them through hardships, disappointments and failures. The human spirit is irrepressible.

The role of computers is generally that of providing a means or opportunity for the person to express their capabilities. The computer extends the person's skills and gives basis to their hope to seek employment. For Brian this came indirectly through writing some children's books.

We saw in the cases of Adam and Colin that the computer's role is intensified by being the means by which other professional skills are activated. Colin's accounting skills, for example, would be relatively meaningless if he wasn't able to express them through a computer.

THE ROLE OF COMPUTER TECHNOLOGY IN BECOMING JOB READY

It is clear in several cases that the employer was re-assured by the qualifications of the prospective employee. Employers might not be able to understand fully the nature of a person's disabilities, but they do appreciate the importance of qualifications. This provides employers and prospective employees with a bridge of understanding.

Employment placement agencies did not have a strong role in bringing these participants to job readiness. In one case (Karen) the agency provided a barrier (from the person's point of view) to employment.

People's experiences with job placement agencies, in terms of gaining employment, varied considerably. They were a positive factor for Colin, a negative factor for Brian, Leanne and Karen, helpful for Andrew and not relevant for Adam. This confirms our previous insights that the quality and relevance of these services vary considerably.

THE RELEVANCE OF A PERSON'S COMPUTER SKILLS IN THE EMPLOYER'S DECISION TO HIRE

Employers need reassurance that the person is capable of doing the job. This is difficult to gauge at the outset. In two cases a trial period gave the employer a preview of the person's capabilities and led to a confirmation of

their employment. Such an option is highly desirable. In Brian's case the three week "training" period may have served a similar purpose.

Subsidies, while not decisive in themselves, were gratefully received by employers in this study. In one case (Adam) they saved the person's job, by facilitating the building of a ramp when the firm had to relocate. There is a suggestion that some of the schemes, such as the Supported Wages System and the New Enterprise Incentive Scheme, are not suited to new work patterns or industries (such as IT).

In several cases the employment placement agency was helpful, not so in others. The lack of a mentor or advocate in Leanne's case shows the potential importance of someone from such an agency to interpret the new circumstances to the workplace in a return to work situation.

The employer himself or herself remains a key factor in this process. The propensity of an employer to take on a person with a disability remains somewhat of a mystery. Previous experience in employing a person with a disability merely relocates the issue chronologically. Perhaps there is in some employers an underlying goodwill that, once key objections have been met, and incentives provided, opens them to the prospect of employing a person with a disability.

Once that choice has been made, it is vital that the employer then be able to adopt a flexible approach to the new employee's work arrangements. Those working in these studies all worked part-time. Some effort was required on the part of each of the employers in making some special arrangements or accommodations, and this was done in each case.

In most studies small organisations are seen as less likely to want to take on employees with a disability. They are seen to lack the resources and range of jobs required to integrate a person with a disability. This study showed that

in other respects small organisations may favour the employment of a person with a disability. They permit more flexible work organisation. They also foster the development of close, supportive workplace relationships.

The role of computers is again to provide credibility to the employer as to the person's capacity to be productive. In each of the case studies there was an acute lack of information regarding computer access options (although Brian used self-help methods to obtain the information he required). Such advice does not appear to be available through employment placement agencies. Employers and employees had little awareness of where to turn for advice and assistance. In each case such advice would have made the employment journey an easier one.

THE ROLE OF COMPUTER TECHNOLOGY IN CAREER DEVELOPMENT

Two of the case studies were successful in that they were enduring employment relationships, with increasing responsibility and remuneration. In both cases the person's capacity to increase their productivity through the use of computers appeared to be a significant factor, from the perspective of both employers and employees.

Workgroup acceptance is another factor to be highlighted in this study. This means more than politeness, as Leanne's example shows. In that case ignorance regarding her disabilities and unrealistic expectations from her manager, over time, contaminated her employment experience. Her case also poses an interesting issue: while the person returning to their previous workplace may have an easier pathway to gaining a job, compared with someone coming in "cold", they may have a tougher journey once they are in the workplace, due to the difficulty of their work colleagues in adjusting to the person's new circumstances (not to mention their own difficulty in facing the fact that they are unable to do what they previously were able to do).

There is a suggestion that outside support would be helpful as these relationships mature. Changes can occur (new technology, new staff, restructuring, relocation) that affect the employment relationship. Access to continuing support would be welcome in these cases. Support cannot be viewed as a one-off event at the beginning of the person's employment. Adam's case shows that employment agency support can have a role in preserving a job through periods of change, as well as in finding a job in the first place. Given the turbulence in modern workplaces brought about by restructuring and new technology, this aspect of the role of employment placement/vocational rehabilitation agencies needs to be recognised, supported and resourced.

There is a major difference between the world of Government policies and programs, and the real work worlds of people with quadriplegia. We see in these case studies that practice is outrunning policy. This can be seen most clearly in the variety of work circumstances in which these people are involved. There is no standard pathway to employment. Instead there is ingenuity, improvisation, deft manoeuvring within and around formal programs and supports. The fit between the needs of these individuals and the offerings of government programs is quite loose. In one sense these individuals are already enmeshed in the world of new work practices – something policy has yet to catch up with. Teleworking and other flexible modes of working are well evident among this group.

Yet in many cases policy failure is also evident. We can see in the cases of Adam and Brian the disincentive effect of pension adjustments. This drives them to earn less than they could otherwise, with an economic cost to the community. Part-time work dominates these case studies, partly because of

its compatibility with personal needs, but partly also because of these policy disincentives.

In the case of Colin we can observe the way in which payments under the *Workplace Modifications Scheme* can function as employer bonus payments. They also partly operated this way in Adam's case, in the beginning.

The role of employment support agencies in these case studies is patchy, but disappointing overall. This confirms suspicions already noted. They appear vulnerable in computer-related work, in business environments and when professional employees are involved.

The *Disability Discrimination Act* has a minimal role in these case studies. It was not mentioned by any of the parties involved, employer or employee, as having any influence or role.

The employment challenge for people with cerebral palsy seemed much tougher than that for those with spinal injury in this study. They must contend with past social and educational disadvantages. Additional disabilities affecting speech appear to disadvantage them considerably in the quest for employment. It is disturbing that an intelligent and highly motivated person such as Karen cannot be supported into employment. The unavailability of personal care support in a work setting seriously disadvantages her and points to a clear failure of policy.

Finally we see clearly in these case studies that the parties become informed about necessary computer adaptations in spite of rather than with the assistance of government policy. While the people in this study did eventually get the information they required, it came slowly, with inconvenience and, at times, frustration. There are many others who never find out, or who accept less than optimum solutions.

CHAPTER SEVEN

CONCLUSIONS

Modern computer technology has the potential to transform the employment experience of people with physical disabilities. This study has shown that this potential is well short of being realised in Australia. We have explored many reasons for this.

We have noted that the invitation for people with disabilities to enter the mainstream workforce is a comparatively recent phenomenon, with the *Rehabilitation Act of 1973* being a watershed. It wasn't until the *Disability Reform Package (1991)* that the same sentiments were expressed in Australian policy. However in the USA the changes came through a vibrant Disability Movement; in Australia they came second-hand and through government idealism.

But idealism does not usually on its own produce successful policies. Anti-discrimination legislation in both the USA and Australia testifies to this. Serious concerns are now being expressed, not only regarding the failure of these statutes to achieve their stated goals, but also regarding the prospect that they may be producing the opposite effects to those intended. They may be *reducing* the employment of people with disabilities.

Not only have governments in Australia fumbled at disability employment policy without any moral guidance or political discipline from a disability movement, but they have also done so without any intellectual support from the academic community. The inattention of major disciplines to the issue of disability and employment, particularly noticeable in Australia, verges on neglect. There has been minimal academic input into disability policy. The government has based its policies around reports it has commissioned from academics, but even these do not generate academic discussion.

Newer disciplines have arisen to fill the void, and these have produced some valuable practical information. But they have not solved the problem. They have failed to integrate their methodologies and insights with those available from the established disciplines. We are left with sporadic insights from a range of disciplines, some of them useful (especially from economics) but with minimal interaction between them. Academic neglect regarding disability and employment has been a major factor in the documented policy failures in this area. Nowhere is this more evident than in the area of computer technology: Australian policy in this area is in shambles.

Our case studies show that this resultant policy failure has implications for the real-life situations of people in the workforce. In spite of admirable determination, these people all have had to contend with inadequate, inappropriate and limiting policies. These have provided disincentives to their work potential, ineffective advice in job preparation, minimal assistance once they have started in a job and virtually no help at all to employees or employers regarding productivity-enhancing assistive technology. The miracle is that several have worked in and around the system to etch out a viable work arrangement for themselves; one of the participants is a haunting example of how half-hearted policies can be heart-breaking in real life for the individuals concerned.

In this study an analytical tool has been developed to enable the insights from different disciplines to be listed in a useful way. It does this by organising these insights around four key junctions or transitions in the employment journey of people with physical disabilities:

1.	The decision to seek employment by the INDIVIDUAL.
2.	The person's preparation for employment involving SUPPORT AGENCIES.
3.	The decision to employ a person with a disability by the EMPLOYER.
4.	The change from a job into a career, with a focus on the WORKPLACE.

This framework allows an understanding of the employment of people with physical disabilities as a *process* rather than as a static concern. This framework has been used to evaluate academic insights, government policies and real-life experiences of people with disabilities in this area. It could also be used identify areas of future research and to assimilate and evaluate new research findings.

We turn now to a consideration of the original questions posed in Chapter 1 of this study.

Key Questions

1. WHAT IS THE ROLE OF COMPUTER TECHNOLOGY AND RELATED ASSISTIVE TECHNOLOGY IN THE VARIOUS STAGES OF THE EMPLOYMENT PROCESS OF PEOPLE WITH QUADRIPLEGIA?

This study has shown that computers have a significant role in supporting the employment process for people with quadriplegia.

It gives individuals who are contemplating employment a vision of their own productive potential. It gives them belief in their own productivity and a pathway for learning and working. In some cases this could be decisive in their decision to enter the workforce.

It assists people to become job ready, by providing an enabling mechanism for their other skills (such as professional skills) to be activated and developed. It does this both in terms of the education process but also in terms of making a person marketable to employers.

Computer technology provides a bridge to link the employee's skills and the workplace. These skills therefore give employers objective reassurance that the person is productive and can realistically contribute to the business.

Finally we have seen that computer skills enable the person to increase their productivity once they are on the job, thus making possible job growth, promotion and increased rewards.

2. HOW SHOULD THE ROLE OF THIS TECHNOLOGY BE EVALUATED IN RELATION TO THE OPERATION OF OTHER FACTORS INFLUENCING THE EMPLOYMENT OF PEOPLE WITH QUADRIPLÉGIA?

This study has shown that the employment process for people with quadriplegia is no simple matter. A complex interplay of factors is involved. Computer technology and computer skills appear to have an enabling role across the key decision areas, functioning much like a common language in a world of dialects. But this may not be decisive.

The decision by an individual to enter the workforce appears to be strongly influenced by financial concerns. Delicate calculations are involved regarding possible loss of pension and benefits, of additional transport costs and of additional care that may be required. On the other hand we observe from our case studies that individuals with physical disabilities often have a strong imperative to seek work. But they must make a judgement regarding their own job-relevant capabilities. Computer skills can be helpful in some cases at this point, by giving the person greater confidence in their own employment potential and income prospects. This may be sufficient to draw them away from the security of the protective web of government support.

Another important factor in that decision is the support and encouragement of the person's family. This was a prominent factor in several of the case studies, but much less so in the literature.

The task of preparing the individual for employment often involved a job placement agency, although many people choose to undertake this process alone. We have found great variability in the effectiveness of these services,

especially in work relating to computers. They also seem less effective in understanding business operation principles and in the special needs of professional or managerial clients. Computer proficiency can provide the means for a person to gain and utilise other skills (such as Colin in our case study, who obtain accounting qualifications). In so doing it could be a tool for overcoming the documented segmentation in the labour market for people with disabilities.

Computer skills can be a great reassurance for employers. But there are many other factors at work in shaping an employer's decision whether or not to hire a person with a disability. This research questions the view that the reimbursement of costs and the payment of productivity-related wages will be compelling for most employers.

A trial employment period can be important, giving the employer an opportunity to view the prospective employee without making a commitment. Employers fear being "stuck" with a person whom they would find difficult to dismiss.

Subsidies may be relevant in the case of small firms. The cost of accommodations should be met by society as a whole, through government subsidy, and not left to the employer alone, as this will be a disincentive.

Anti-discrimination legislation was not a factor in our case studies, although it probably has more prominence in the case of larger firms.

We know from wider studies that employers react differently to different types of disability. Among our group, it would be fair to say that the speech impairments of those with cerebral palsy would limit their employment potential compared with those with spinal injury, or would at least give them a narrower range of target employments to aim for.

As employment relationships mature, the person with quadriplegia will have opportunities to advance if they can increase their productivity. Computers can be important in that process. Workgroup acceptance and flexible job design will also contribute positively to the likelihood of such an outcome. On the other hand, workplace instability and restructuring can undermine delicate employment situations involving people with disabilities, although our case studies revealed at least one example where change provided an opportunity for an employee to expand his role.

3. WHAT EVALUATION SHOULD BE MADE OF RECENT GOVERNMENT PROGRAMS AND POLICIES IN AUSTRALIA, IN THE LIGHT OF THE ABOVE ANALYSIS?

This thesis has been critical of Australian government policies regarding the employment of people with disabilities, especially policies relating to the adoption of computer technology to increase the productivity of people with physical disabilities. The failure of these policies is demonstrated in the declining employment of people with disabilities during the 1990s. The hypocrisy of these policies is revealed in the fact that governments employ a declining proportion of people with disabilities among their own staff.

This research suggests a number of improvements to the current set of policies to encourage the employment of people with disabilities. While our analysis has concentrated on those with quadriplegia, some of these recommendations will have wider currency.

1. Increase research

The government needs to expand its commitment to disability study and research. Through this it needs to develop clear models and frameworks that

will give its policies direction and coherence. A multi-disciplinary approach to this task is essential.

2. Amend the Disability Discrimination Act 1992

One of the main reasons the DDA has not had the same impact (in terms of awareness) as the ADA is that the key term, *reasonable accommodation*, was left out of the hastily constructed DDA. Only legal contortions can locate a parallel requirement in the Australian legislation, but even such an exercise misses the point that public (and especially employer) perceptions are what are at issue. The DDA should be amended to include an up front requirement for employers to make *reasonable accommodations* for disabled workers or applicants. However we note that in Australia, unlike in the USA, the cost of such accommodations can be offset by government subsidies available under the *Workplace Modifications Scheme*. The next recommendation is therefore also necessary.

3. Introduce a job accommodation service

Australia has no equivalent of the *Job Accommodation Network* in the USA, although a recent employer initiative (EMAD) is taking steps in that direction. Employers can help each other. In the modern global economy, it would be possible for employers here to participate directly in the *JAN*. This would give local employers access to a huge reservoir of information on job accommodations that would otherwise take decades to develop here. *EMAD* could operate as a gateway for Australian employers. The Australian government would probably have to pay a fee to *JAN*, but such is likely to provide a more cost effective option than trying to build something from scratch here.

4. Introduce a local Tech Act

The *Technology Related Assistance Act of 1988* (now the *Assistive Technology Act of 1998*) has provided a boost to the application of assistive technology in the USA. Artificial barriers inherent in the Commonwealth-State Disability Agreement that might prevent the implementation of such legislation should be overcome. Proper funding for technology centres in States and regional areas, with a special focus on technology for education and employment, would have benefits greatly disproportionate to its costs.

5. Introduce an industry development corporation

The purpose of this would be to fund research and product development in the area of assistive technology. It would be a specialised area of IT in which Australia would be well equipped for excellence. Through this Corporation the government would seed-fund and partner suitable new technologies, the profits from which could fund new product research.

6. Revise and monitor employment placement services

There seems to be an artificial division between funded employment placement agencies and rehabilitation services (such as the Commonwealth Rehabilitation Service). The result can be a confusing array of overlapping agencies to deal with, whether you are a person with a disability or an employer. Our study, and the *Making It Work* study, both point to major variations in performance of these organisations. Steps should be taken to rationalise the system and to improve its quality and consistency. Training should be provided to increase the awareness by staff of assistive technology resources and options.

There seems little reason why *rehabilitation services*, often funded under workers' compensation arrangements and focusing on return to work, should be separate from *employment placement services*, typically funded by

the government to assist people with disabilities into employment. The processes, skills required and target employers are the same. The possibilities for cross-fertilisation are considerable, in that an employer who is assisted in the return to work of an injured employee may be more open to taking on another disabled worker via the same agency. Economies of scale would be available. A single umbrella service for employers who have workers with disabilities, whatever the background, should be developed.

All employers who receive services from such organisations should be surveyed as soon as the service is completed. Government funding or accreditation should be linked to the quality of service provided.

7. Contract compliance

Government purchasing could be turned into an influential tool to promote equitable access to employment for people with disabilities. Applicants for government funding and contracts should have to complete a form that indicates the number of people with disabilities they employ, their rank in the organisation and the remuneration they receive. If all other factors are equal, preference should be given to firms that have the highest proportion (weighted by position and wages paid) of people with disabilities. Or else a system such as that which applies under the *Rehabilitation Act* in the USA should be considered, whereby some expectations regarding the employment of people with disabilities should be laid upon those who receive government funding.

8. Continuing support

There is a tendency for government programs to cluster at the pre-employment stage or at the time of initial employment. Yet our research has shown that the need for support continues through the employment relationship.

Changes in workplaces and patterns of employment make the need for such support imperative. We have seen major re-structuring in most industries, and the move to more contractual, modular work arrangements.

At one level, this new flexibility is a positive development for people with disabilities. It may allow tailored work arrangements more suited to the specific needs of disabled workers. Old jobs and demarcations tended to squeeze out people with disabilities.

Yet there are other consequences of these changes. While it may be true that people with disabilities make for a loyal and committed workforce, who wants a loyal and committed workforce any longer? The trend seems to be towards jobs that are temporary, both from employer and employee perspectives. The transitory nature of much modern employment makes it difficult for people with disabilities, for whom investments (personal, employer and government) are required. These “start-up” costs place people with disabilities at a relative disadvantage if jobs become temporary and short term.

Government programs, to advise, support and resource both employers and employees will be vital to sustain such relationships in these times of change. Such support should include assistive technology, as the trend towards computerised workplaces gather pace.

8. Increase publicity

There is a strong suggestion from our research that the current range of policies would be more effective if they were given more publicity. Most employers, for example, would be ignorant regarding available benefits to them for employing a person with a disability. If they consulted the website of *Centrelink* or the *Department of Family and Community Services* to obtain information directed at them they would come up empty-handed. Policies

will have little impact if they are not known by those to whom they are directed.

Computer technology, when adapted to the needs and circumstances of people with disabilities, can link them to the cutting edge of modern work opportunities. Failure to make and support such adaptations will result in a widening gap between people with disabilities such as quadriplegia and the rest of the workforce. There are many factors that shape the employment journey of people with disabilities, as this study has shown, but this is one area that is clearly amenable to coherent and visionary government policies. We hold our breath in Australia in hope of such an outcome.

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