



Productivity-Enhancing Technology and Employment for People with a Disability

Employment Innovation Fund Research Project

Background

People with a disability sometimes require adjustments at the workplace to enable their productive involvement in the workforce. This is mainly resourced in Australia through the Workplace Modifications Scheme (WMS).

The WMS was expanded and substantially improved in 2006 as part of the introduction of *JobAccess*. Employers can now apply on line on their own initiative, although in most cases a Service Provider is also involved.

The Workplace Modifications Guidelines (14/7/2006) state that the WMS can apply to workers who are “in employment” or who “seek employment” but not those undertaking work experience, trainees, those doing unpaid work and *Work for the Dole* participants. In practice, however, the WMS seems to apply to those who are in employment or very close to such (say, with a letter of offer from an employer). This is also the tenor of the section on the WMS on the *JobAccess* web site, under “Eligibility”, where the WMS is listed as an *Employer Incentive*:

All employers of people with disability are potentially eligible for reimbursement of the cost of workplace modifications. In order to qualify for assistance an employer must employ a person with disability for at least eight hours a week in a job that is expected to last for at least three months.

Workplace modifications, as the name implies, are focused on the workplace. The Workplace Modifications Guidelines (14/7/2006) state:

The aim of the Australian Government Workplace Modifications Scheme (WMS) is to encourage and support the employment of eligible people with a disability by providing financial assistance for the cost of modifications and adjustments that may be needed to a workplace. [1.1]

However the assistance provided can be broader than that. The Guidelines (8.0) mention aims such as to:

- reduce an existing barrier to employment;
- enhance employment conditions;
- complement employment and training strategies; and
- improve the worker's productivity in the proposed position.

The Guidelines (5.0) also mention equipment that “enables a worker to perform at his/her full potential and/or maximise his/her income”. Further, it is also available “to existing employees if they have had a change in duties, career progression, change in disability and/or a new modification becomes available that would increase their productivity” (www.jobaccess.gov.au).

Not all WMS approvals will involve equipment as such. Procedures at work, for instance, can be addressed. However often there will be a need for changes in equipment or facilities to be made. In this regard two types of technology embraced by the WMS can be distinguished.

First, there are adjustments that can only apply at the specific workplace or in relation to a specific job. These will include toilet modifications, ramps and vehicular modifications. They are anchored in the particular workplace.

Second, there are adjustments that relate to the individual worker and his/her productivity. They may be relevant to a variety of jobs and are in this sense portable. It is this technology, which we called *Productivity-Enhancing Technology* (PET), which is the subject of this research. It typically involves assistive technology (AT) related to computer access. Here are some examples:

- A person with quadriplegia who uses speech recognition.
- A person with an upper limb amputation who uses a special keyboard designed for one-handed use.
- A person with impaired memory who manages their day effectively through a PDA (such as a *Palm* or *Pocket PC*).

The issue being addressed by this research is:

Are there benefits if PET is made available *prior* to the person gaining a job? Is it possible that the early provision of PET would enhance the person's employment prospects?

How might this happen? We have looked at three possibilities:

1. That PET, by increasing the person's sense of their own productive potential, could **increase their desire, confidence and motivation to seek work**. This may involve their deciding to enter the workforce or perhaps to pursue work with greater vigour. It may also encourage those who are already employed to seek higher level work.
2. That PET, by increasing the person's job-relevant skills, could **increase their employment options**. For example, they may have a wider choice of employment options, from which we may assume they would have a greater chance of finding a job more relevant to their skills and preferences. This task may involve a government agency, although not .
3. That PET, by enabling the person to maximise their productivity, would **make them more attractive to a prospective employer**. In essence, that an employer would be more inclined to employ a person with a disability whose productive potential has already been expanded by PET. At present a potential employee must face their prospective employer without those productivity enhancements. This means the employer does not see them "at their best".

Methodology

The research utilised a case study methodology.¹ Participants were sought through PAGES (Providers of Australian Government Employment Services) but also through other sources. Due to time pressures, we also contacted PAGES who had purchased PET through Ability's small but specialised sales arm, or who had sought our professional advice regarding PET for their clients. Clearly this was not a random selection but that is not the intention in case study research of this nature.

Consent forms were designed for each participant group – individuals, PAGES, and employers. These are shown in the attachments to this report. Confidentiality was assured for all participants.

Meetings were held with some PAGES; others could only offer phone or email contact. We had extensive contact with PAGES by phone and email throughout the project, to monitor progress and to gain feedback on their participants.

Participants were in most cases nominated by the PAGES, but not always (as the *JobAccess* program allows employers to access the WMS without the involvement of a government agency; this circumstance arose during the research). Screening took place, to ensure that possible participants had needs that were likely to be addressed by PET and were motivated to seek work.

¹ See Yin R., Case Study Research – Design and Methods 2003, 3rd edition, Sage, California.

Interviews and assessments of their technology needs followed. We also supplied PET to most participants, customised it to their requirements (including ergonomic advice) and provided training. It should be noted that there was considerable overlap between assessment and training in this study. In some cases participants had developed skills on their own, outside of and prior to this project.

In some cases participants had access to other sources of equipment funding. In several cases our involvement led to the rapid placement of participants into employment, where they had imminent access to WMS funding; in such cases we did not seek to duplicate the likely WMS funding.

The progress of each participant against the three criteria established earlier was monitored throughout the time period of the project. These criteria were:

1. Has it increased the person's confidence and motivation to seek work?
2. Has it given them a wider choice of possible employment options, in comparison to their options prior to the availability of such technology?
3. Has it made them more attractive to employers?

Towards the end of the project period interviews were conducted with participants, PAGES and employers, to obtain relevant qualitative data.

Note: This project was undertaken under acute time constraints. There was barely sufficient time for the full process of assessment, training, job search and placement to occur. In some cases participants remain part way through this process. This is noted in the case reports that follow.

Participants and Outcomes

Confidentiality was offered to each of the participants and employers. For this reason the names have been changed and locations generalised.

There were 16 participants in the project. We have reported on all of them, even though the project funding was limited to 10 participants. The first 10 case studies that follow represent the funded participants in the project, while those that follow are included for information.

Jenny

Background

Jenny is a 21 year old female with spastic dystonic quadriplegia (cerebral palsy). She is ambitious and has a bright personality. She mobilises in a motorised wheelchair with a right joystick control. She has no speech and relies on a *lightWRITER* device to provide synthesised speech. Jenny has difficulty with reach and fine motor control.

Vocational

Jenny has studied to HSC level and part completed a TAFE course in graphic design. Her motivation to seek employment is high; however she has never been employed. She has secured a work experience position with a graphics design firm.

Assessment

Jenny's assessment took place at a pivotal time in her vocational journey. Jenny is a proficient computer user. She has a *Windows* notebook computer and *EZ keys* rate enhancement software with word prediction and speech output. Her keyboard has had a customised key guard installed; she accesses the computer with this keyboard and touch pad. At her work experience she has been provided with a large display, which is connected directly to her notebook.

Jenny's work experience went well and the employer was considering offering her part-time employment. The firm, however, uses Macintosh computers and had found it troublesome to try to integrate Jenny's *Windows* notebook into their Macintosh work system and network. They also required her to use the same software that the workplace uses. This problem was providing a barrier to Jenny's prospective employment and there was a great risk that the job possibility would fall through.

The employer advised Jenny they were keen to offer Jenny employment however could only do so if she could access and operate a Macintosh computer. With the assistance of her PAGES, Jenny applied to the Workplace Modifications Scheme for a workplace assessment. JobAccess however advised her PAGE that she was not eligible for an assessment until she had a formal written job offer.

The AT Assessment was completed at this juncture. Her employment offer was contingent on her ability to access computer technology however she did not qualify for a workplace assessment through the Workplace Modifications Scheme.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Unable to use the Macintosh desktop keyboard and mouse options. ❖ Unable to use <i>EZ keys</i> software on Macintosh computers. ❖ Unable to operate <i>lightWRITER</i> when using the notebook computer. 	<ol style="list-style-type: none"> 1. Provision of an <i>Apple Macbook</i> and customised key guard. 2. Installation of <i>Co: Writer</i> which is Macintosh compatible. Alternatively, <i>Parallels</i> software with <i>Windows operating system</i> would enable <i>EZ keys</i> to be used.

Outcome

The AT Assessment was able to verify that Jenny would be able to use a Macintosh computer and that she could gain the same proficiency she now has on her Windows notebook. This information enabled the employer to make a formal offer of employment for Jenny. She was then able to access the Workplace Modifications Scheme workplace assessment and funding for essential equipment.

<p>1. Increase motivation to seek work?</p> <p style="color: blue; font-size: 2em;">=</p>	<p>Before</p> <p>Jenny was already highly motivated to seek work and to display her talents. However she was in danger of becoming frustrated and ultimately withdrawing from the workforce. She was anxious that the inability to access a workplace assessment regarding her technology needs would jeopardise her employment.</p> <p>After</p> <p>The assessment gave her encouragement and confidence that technology was available to assist her in overcoming barriers to employment.</p>
<p>2. Increase employment options?</p> <p style="color: red; font-size: 2em;">×</p>	<p>Before & After</p> <p>Jenny's chosen area of work is specialised but one in which she has talent. The project was not responsible for identifying this work for her. Her PAGE however indicated that the AT Assessment confirmed this could be a viable employment option.</p>
<p>3. More positive employer response?</p> <p style="color: green; font-size: 2em;">✓</p>	<p>The AT Assessment gave the employer security that the technological issues surrounding Jenny's employment could be solved and that expertise in this area was readily available. This was decisive in securing her job offer.</p>

Zac

Background

Zac is a 46 year old male who had a stroke in June 2003. This resulted in significantly reduced movement in his left non-dominant arm and speech difficulties. He has since experienced significant improvement in his speech.

Vocational

Zac was born in Pakistan and moved to Australia in the 1990s. He undertook training in computers and touch typing when he lived in Pakistan and has completed a Masters of Commerce. He also has an Advanced Diploma in Accounting from TAFE. Prior to his stroke Zac had been consistently employed in a range of positions that had a focus on accounting and involved the use of computers. Zac was employed in a full time accounts role at the time of his stroke. He was unable to return to work initially as he required a period of physical rehabilitation. He did however return to the position in October 2006 on a part time basis for 6 months. Unfortunately the employer did not have enough work for him and he is now unemployed. During his return to work Zac identified difficulties using the computer with one hand and found that he was much slower as a result.

Zac is now job seeking with the assistance of his employment consultant and is fit to work 8 hours per week. He explained that he is concerned about his typing speed as he used to be a touch typist. He indicated he had applied for numerous positions however had not had any offers of employment of late. As a result he has started studying CPA at University on a part time basis. Zac related that he is motivated to work however lacks confidence in his ability to be productive enough to be competitive in job seeking.

Zac has a strong work history and skill set. His disability is however impacting on his ability to use those skills in an employment setting. When we first met Zac his motivation to continue to look for work was decreasing due to repeated knock backs and a hope that he would still have some recovery in the use of his arm. He was changing his focus from work to further study.

Assessment

Zac's AT assessment was completed at his home. It identified that he has strong computer knowledge and skills however he is unable to use his left arm at all to access the computer.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Typing speed was reduced to 8 words per minute compared with 80 words per minute prior to the stroke. ❖ Unable to hold down multiple keystrokes simultaneously. 	<ol style="list-style-type: none"> 1. <i>Five Finger Typing</i> training software program. 2. Use of a <i>Cherry compact keyboard</i> and <i>Cherry Keypad</i> (numeric) to reduce the distance the right hand needs to move to access keys and to enable ergonomic positioning to maximise efficiency of movement when using the keyboard. 3. Customisation of <i>Microsoft Windows</i> including use of <i>StickyKeys</i>, <i>AutoCorrect</i>, <i>AutoText</i> and <i>AutoFormat</i>.

Following the assessment, Zac was provided with a *Cherry compact keyboard*, *numeric keypad* and the *Five Finger Typist* training program. He had difficulty running the software for the *Five Finger Typist* training program on his home computer so arrangements were made for him to undertake this training at his PAGE. He was provided with training in the hardware and software recommended. He has the potential to increase his typing speed further once he has completed the *Five Finger Typing* training program. The keyboard can easily be used on any computer that has a USB port. The skills he has enhanced through the assessment can be directly applied to a job.

Outcome

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Although Zac is motivated to work, his motivation to job seek was dampened by the repeated knock backs from employers. He was starting to shift his focus from employment to further study.</p> <p>After</p> <p>His employment consultant indicated that his focus on employment started to increase since the AT assessment.</p> <p>Zac also reported that his confidence in his productivity (ability to be fast enough) when using the computer improved. He is still job seeking however has not yet had any success. He reported that the main barrier was trying to find an employer who was willing to give him the opportunity to work.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">=</p>	<p>Before & After</p> <p>Zac already had a strong skill base in accounts and administrative positions that involved use of computers. The technology has enabled him to look for employment where he can apply those skills.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Before & After</p> <p>Zac is job seeking at present.</p>

Gordon

Background

Gordon is a 49 year old male with Spastic Diplegia. He mobilises using a powered wheelchair with a joystick control. He also has a speech impairment. Gordon has fine motor difficulties in both his upper limbs and fatigues easily. He is barely able to write.

Vocational

Gordon has approximately twelve years switchboard employment experience. At the time of the assessment he was unemployed and had recently undertaken a TAFE course in Business Administration. He was also receiving the assistance of a PAGES in looking for work. The employment consultant referred Gordon to a number of AT Services for an assessment regarding computer access prior to the TAFE course. This was due to concerns about how he would manage the computer and note taking. Gordon did not however receive an AT assessment until after the course, some 6 months later, due to long waiting lists and the limited availability of services. Gordon indicated that the TAFE attempted to investigate computer access options for him however they were of limited benefit. He trialled a compact keyboard at the TAFE however this served to magnify difficulties using a standard keyboard. Gordon did not have access to a computer at home however did have a computer to use at his PAGES. Gordon reflected that he was *“feeling really down after TAFE”* because of his limited ability to use the computer and lack of specialist support available.

Gordon also recalled undertaking a work experience placement prior to the TAFE course in March 2006 through the Premiers Department and Corporate Partners for Change. He indicated that this was a negative experience, partly due to difficulty identifying administrative roles he could successfully undertake despite his physical disability. He trialled *Dragon Naturally Speaking* speech recognition software during the work experience but was unsuccessful. On reflection it may have been successful if Gordon had the opportunity to trial this prior to the work placement as specialist training is required to use the software. He reported that he was *“not feeling confident about looking for work”* at this time.

Assessment

Gordon's assessment took place at the PAGES office. Gordon is only able to use his left hand to access the computer.

Issues identified	Solutions
<ul style="list-style-type: none">❖ Reduced accuracy typing as he tended to hit more than one key at a time. Difficulty targeting individual keys.❖ Reduced speed of text entry.❖ Unable to use a standard mouse.❖ Unable to hold down multiple keystrokes simultaneously.	<ol style="list-style-type: none">1. Use of a standard keyboard with <i>SlowKeys</i> setting.2. Use of <i>Traxys Trackball</i> mouse with single click operation.3. <i>Penfriend</i> word prediction software program.4. <i>WordBar</i> word bank software program.

The use of speech recognition software was also considered at the assessment. Gordon indicated that he had had the opportunity to trial the software at his PAGES since the work experience placement and while he had some success with it he found it frustrating and did not wish to try this again.

At the time of the assessment, Gordon's employment consultant had been negotiating a possible work experience position for him in an administration role. Enabling computer access was considered an important part of planning for the tasks he may be able to undertake. There was some concern however how the equipment required could be funded for the work experience placement. A successful work experience placement was considered an essential component of Gordon's pathway to employment.

Outcome

Gordon completed a period of work experience, with the assistance of the PAGES. He was able to borrow the trackball for the latter part of the work experience placement. At the end of the placement Gordon was successful in securing employment with the same organisation for two days per week, for an initial six month contract. His duties include data entry, shredding, answering phones and assisting with reception. Gordon's employment consultant assisted him to apply for funding through the Workplace Modifications Scheme once the offer of employment was confirmed. Because they already had an AT report to support the application, the funding was

approved in four hours. This meant that Gordon's equipment was available for him on the first day of employment.

Gordon's employer was interviewed several weeks after he started work. His employer is a not for profit community service. The organisation has an affirmative action policy for employing some staff who are from a non-English speaking background or who have a disability. The majority of staff do not however have a disability. The employer related that although they have an affirmative policy they still need to hire ***"the best candidate for the job"***. She highlighted that when recruiting staff ***"we need to know the person can do the job at an ordinary productive level, we need to know they are productive"***. Prior use of technology can facilitate this, ***"AT is a basis for confidence when applying"***. Being able to ***"talk about"*** the technology in relation to productivity and to ***"show the employer"*** the technology can be reassuring, particularly if they can ***"specify what they can do"***.

The employment consultant and employer agreed that the volunteer work experience was critical to work out Gordon's strengths and possible tasks he could do at work. Gordon's computer work was limited at first and he needed extra support until he was provided with the trackball. Provision of the trackball increased the tasks he could do and made him more employable.

The employer was asked if a lack of technology and no prior experience using the technology would have been a barrier to employing Gordon. She suggested that in this case, her awareness of technology services meant that she would still have employed Gordon because she knew how to apply for technology funding post employment. She indicated this is however, likely to be a barrier if an employer does not have this knowledge or awareness. In her experience, as an employer and an advocacy service provider, she stated that the main barrier for someone from a disability from a non-English speaking background is ***"attitudinal"***. She stated that ***"early provision of AT can change expectations at many levels about what a person can achieve"***. This directly impacts on attitudinal barriers. For example, ***"if technology is provided early, expectations are different and this could reduce stigma"***. ***"Early technology focuses on what a person can do, expands on the options they have"***. It ***"creates opportunities"***. She suggested this would include the expectations of employers, families and the individuals themselves. Awareness of services was also perceived as a barrier.

<p>1. Increase motivation and confidence to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Gordon stated that he was <i>“feeling really down after TAFE”</i> because of his limited ability to use the computer. He was <i>“not feeling confident about looking for work”</i>.</p> <p>The delay in access to computer technology impeded work experience and training in critical work skills. This impacted on Gordon’s confidence and motivation.</p> <p>After</p> <p>Gordon reported that access to the equipment prior to obtaining the job <i>“definitely made it easier, physically and mentally, and I felt I could contribute more to the workplace”</i>. He reflected that <i>“it made it more appealing for the employer”</i>.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Before the technology provision, Gordon had undertaken work experience that was unsuccessful in securing employment.</p> <p>The delay in access to computer technology impeded work experience and development of employment related skills.</p> <p>After</p> <p>Gordon’s employment consultant stated:</p> <p><i>“The employer was impressed”</i> that Gordon already had the equipment to start the job.</p> <p><i>“In open employment it is a definite bonus having the equipment. A lot of employers balk at the idea of employment because of the possible costs.”</i></p> <p>The equipment increased the number of tasks that Gordon could undertake at work and this impacted on his ability to secure employment.</p> <p>Having the AT report sped up Workplace Modifications funding time frames.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>Gordon has secured employment.</p> <p>The employer acknowledged that early provision of computer technology has the power to change employers attitudes and expectations about what a person with a disability can do and achieve.</p>

Sally

Background

Sally is a 43 year old female who has cerebral palsy. She is able to walk short distances and uses a scooter to access the community. Sally is married with two teenage children. Her cerebral palsy impacts on her fine motor hand control, her reach, walking, balance and speech.

Vocational

Sally hasn't worked for 18 years. She has devoted much of that time to raising her two children and running her household. She has however completed some computer related business training at TAFE and is now completing a Certificate in Business. Prior to starting a family Sally completed work experience in office work on a part time basis. When we met Sally she was receiving assistance from a PAGES and was looking for work experience in an office setting. She wasn't sure exactly what her interests were but was motivated to use the work experience to explore this further. Sally's employment options were somewhat limited by her mobility in she wanted to work locally so she could access work on her scooter. She also wanted to work school hours.

Assessment

Sally's assessment was completed at her home. It was evident that she had developed skills in computers however hadn't had the opportunity to apply this in a work setting. She presented as highly motivated to work and was confident she would be able to work well if she found the right position. She related that her main barrier to employment was in finding someone who was willing to give her a go. She suggested that "*stigma*" was the main barrier that would limit her work opportunities. Sally accessed the computer primarily with her right hand due to spasticity in her left arm.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Reduced speed with one handed typing (right hand) ❖ Difficulty with multiple keystrokes ❖ Difficulty accessing the mouse and decreased speed and accuracy using the mouse 	<ol style="list-style-type: none"> 1. <i>Cherry Compact</i> keyboard to increase speed of typing by reducing the distance the right hand needs to move to access keys. 2. Use of <i>StickyKeys</i> and <i>FilterKeys</i> settings. 3. Use of a compact keyboard to enable more appropriate positioning of the standard mouse and increased speed and accuracy using the mouse. Setting for mouse pointer adjusted in <i>Windows</i> to increase accuracy. 4. Rate enhancement software including <i>WordQ</i> word prediction and <i>WordBar</i> Word bank. 5. <i>Five Finger Typist</i> software training package. 6. Advice regarding ergonomic workstation set up for one handed typing to minimize fatigue and maximize productivity. 7. Use of separate numeric <i>Cherry keypad</i> for numeric data entry with programmable keys for completing multiple keystrokes in one key.

The equipment recommended was loaned to Sally for the duration of the project. She received 1:1 training in the use of the software and hardware options and was also able to take the keyboard to TAFE.

Outcome

During the equipment loan period, Sally was interviewed by a company for an administrative work experience position. When the employer enquired about her computer skills she was able to explain that she can access a computer effectively and they were able to discuss how this may contribute to the workplace. The focus was on how she could apply her proven skills to the workplace, rather than how she could access funding once she is employed to obtain the computer technology she needs to be productive. The employer was particularly interested in her desktop publishing skills. Her improved mouse control and accuracy achieved through the provision of computer technology will directly impact on her productivity in these tasks which are highly dependent on mouse use.

Sally was successful in securing a six month work experience placement with the employer and she will be able to use the equipment recommended during her placement. She would not otherwise have had access to this technology during her work experience. Given that she hasn't been employment for 18 years, success in this placement, in demonstrating her productivity and skills, will be essential.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">=</p>	<p>Before</p> <p>Sally was highly motivated prior to the assessment. She was confident in her skills and felt that her main barrier was <i>"stigma"</i> because of her disability. She wasn't able to identify ways she could overcome this barrier other than being able to demonstrate what she can do. She lacked confidence in <i>"employer's attitudes for giving opportunities"</i> and expressed that <i>"people aren't willing to give me a go"</i>.</p> <p>After</p> <p>Sally was already highly motivated to work and confident in her abilities. The challenge for her was to look at ways she could overcome <i>"stigma"</i> in the workplace. Being equipped to explain her skills with a focus on what she can do may be an important strategy to address this. It changes the focus from ways to address difficulties e.g. accessing the Workplace Modifications Scheme to a focus on what she had already achieved and what she can do.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Sally's employment consultant indicated that the focus was on administrative work.</p> <p>After</p> <p>Sally's options for work expanded with a greater emphasis on computer related tasks. Her employment consultant reported that <i>"the opportunity has done wonders for her"</i> and she now has <i>"a keyboard that she loves"</i>.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>The employer said that <i>"my confidence in taking her on for the trial was increased by her computer skills"</i>. He was impressed by the solutions provided through the project and said <i>"it is good to know such support is available"</i>.</p>

Donald

Background

Donald is a 34 year old male with a brain injury. He sustained his injury at 15 years of age when he fell in a playground. He was in a coma for 7 weeks before undertaking a period of rehabilitation. Donald is able to mobilise with two Canadian crutches. He has difficulties with his balance and gross and fine motor movement in both his upper limbs. Donald also has some speech, spelling and reading difficulties as a result of his injuries and fatigues easily.

Vocational

Donald has a strong work history, working for several large firms. This has included administration, accounts payable and receivable duties. Donald is highly motivated to work however was retrenched from his last position 3 years ago after 9 years of service. Donald has been looking for work since and has undertaken further training in computers and administration through TAFE. He has completed training in *MYOB* and *Microsoft Office* software programs and a Certificate 4 in Accounting. Donald reported that it is very hard to secure open employment and has been disappointed by being retrenched now on two occasions. Donald was looking for part time office employment at the time of the AT Assessment with the assistance of a PAGES. He was hopeful to use his computer and accounting skills. Donald suggested that the main barrier to him finding employment was in finding someone who is willing to take him on.

Assessment

Donald's assessment was completed at the Ability Technology Office. The assessment revealed that he has good computer knowledge but his productivity is likely to impact on his use of these skills in the workplace.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Decreased typing speed using left hand only. ❖ Unable to use standard mouse in right hand. ❖ Spelling difficulties ❖ Difficulty reading information on the computer screen ❖ Difficulty accessing numeric keypad on a standard keyboard 	<ol style="list-style-type: none"> 1. <i>Five Finger Typist</i> software training package to increase speed of typing. 2. <i>textHELP Read&Write 8</i> software with <i>headphones</i>. Features word prediction, speech output and dictionary built into spell check to make it easier to identify correct spelling. 3. Use of standard mouse in left hand. 4. Separate numeric <i>Cherry keypad</i> for numeric data entry with programmable keys for completing multiple keystrokes in one key. To be positioned on left of keyboard and can be moved out of the way when not in use. 5. Advice regarding ergonomic workstation set up for one handed typing to minimise fatigue and maximize productivity. 6. Customisation of the computer display and software tool bars to increase the size of the display and to reduce the amount of information on the screen that needs to be scanned through.

Donald was provided with the software and equipment recommended. He participated in a training session in the use of *textHELP Read&Write 8.0* and is undertaking the *Five Finger Typist* program independently. The speech output and word prediction features of *textHELP Read&Write 8.0* assisted with reading, the correct spelling of words and word selection. The package also has optical character recognition scanning which can reduce need to enter large amounts of text manually.

Outcome

Donald already has strong computer skills however the assessment identified that his disability impacts on his speed when using the computer. Donald was already motivated to work and was actively seeking employment or work experience with the assistance of his PAGES. Feedback was given to the PAGE regarding ways that Donald's productivity could be enhanced though the technology provided.

With the assistance of his PAGE, Donald has secured work experience with a community health service. A short period of work experience has commenced with the view to employment. The purpose of the placement is to provide Donald and the employer with the opportunity to define his work tasks, strengths and weaknesses. The role will be computer based where he is required to set up and manage an *Excel* based data base for the service. The placement had just commenced at the time of writing this report and it is anticipated that the hardware and software recommended has the potential to be used in the workplace to maximise his productivity.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Donald was already motivated to seek work however lacked confidence in his spelling and typing speed. Donald's perception was that the main barrier to finding work was finding someone who was willing to give him a go.</p> <p>After</p> <p>Donald reported increased confidence in constructing text using the software provided as this assisted him to overcome vision, reading and spelling difficulties.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Donald was already skilled in the use of computers and had already identified areas of work he was interested in prior to the AT Assessment.</p> <p>After</p> <p>Use of the literacy software provided has the potential to increase his opportunity to consider work that involves the constructing of text. His PAGES employment consultant reported that he has a particular talent with language and writing when he is dictating text to her to be typed. The technology provided will give the opportunity to build on this strength.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">=</p>	<p>Donald has since secured work experience with the view to employment. It is anticipated that the computer technology will be applied to his role in the job. The use of technology was not reported by Donald or the employment consultant as a key part of negotiation in securing this role.</p>

Gary

Background

Gary is a 28 year old male who sustained a C4 spinal injury in September 2005. He has quadriplegia with no movement in the lower limbs. He has some minimal left shoulder and right elbow movement but no hand function. Gary mobilises in a powered wheelchair using a joystick.

Vocational

Gary was self employed as a Systems Architect consultant at the time of his accident. When we met Gary, he was starting to consider his employment options. He had made contact with an old industry colleague to enquire about employment options. They expressed interested in offering him employment if he was able to access the computer and perform his pre injury work tasks.

Gary had the opportunity early on in his inpatient hospital rehabilitation to be introduced to computer technology as an alternative to handwriting and to enable computer access. This included trial of several mouth and head controlled mouse devices, speech recognition and an onscreen keyboard. His Occupational Therapist assisted him to obtain a *Quadjoy* mouse through the Community Participation Program funding and provided some basic training in its use with a *Windows* onscreen keyboard. The *Quadjoy* is a mouth controlled joystick with a sip and puff for mouse clicking. Gary has been able to explain this and the use of speech recognition software with his employer.

Assessment

Gary's assessment was completed at a community program office. His current computer technology use was reviewed with the view to maximise his productivity. It was clear that by having the opportunity to develop competence in computer access before looking for work, was of great benefit to Gary in terms of opportunity and his psychological well being. He can now enter employment with competence accessing a computer rather than the promise of being able to use a computer. The assessment allowed specification of the most appropriate speech recognition program for the workplace and enabled access options to be tailored to the type of work he was looking for. For example, Gary's area of potential work requires a mouse device that does not require depend on associated software.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Unable to use his upper limbs to access a computer. ❖ Unable to don a headset for use with the speech recognition software. ❖ Unable to pick up a phone handset or to dial a phone number. 	<ol style="list-style-type: none"> 1. <i>Quadjoy</i> mouth controlled joystick mouse device with goose neck mounting. 2. Use of an onscreen keyboard that has built in word prediction <i>WiVik</i> and <i>WordQ</i>. 3. <i>Dragon Naturally Speaking Professional</i> software with a wireless desk top microphone (<i>Andrea superbeam array microphone</i>). 4. <i>VoIP</i> with wireless earpiece for telephone and voice dial hands free mobile phone.

Given that Gary had already developed competence in the use of the hardware and software recommended and secured a job offer soon after the assessment, it was considered most appropriate that Gary obtain the computer technology recommended through the Workplace Modifications JobAccess scheme.

Outcome

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Gary suffered a catastrophic injury which had a profound impact on his confidence and identity.</p> <p>After</p> <p>Gary reported that the technology significantly contributed to his motivation and confidence in his ability to pursue work. He indicated that it has enabled him to utilise his existing skills and has given him a basis for being able to approach a firm about employment. Gary was able to approach the firm independently.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">=</p>	<p>Before & After</p> <p>Gary already had skills in this area and was keen to pursue this line of work.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>Preliminary discussion with the employer has indicated that Gary's ability to access computer related technology is critical to them being able to offer him employment. Gary's prior experience with technology has given them confidence in this as they were not aware of any services that may enable him to do so.</p>

Whilst it is most appropriate that the equipment for Gary is provided under the Workplace Modification Scheme through JobAccess, this case study highlights that, the opportunity to access an assessment and develop competence in the use of equipment prior to job seeking was critical. Firstly, it enabled him to confirm that he can use his previous work skills in employment, and secondly, assisted in creating an opportunity with an employer that would not have existed if he had no prior exposure to the technology.

Kaye

Background

Kaye is a 36 year old female with cerebral palsy. She uses a powered wheelchair which she controls using a joystick. Kaye has good fine motor control in her right hand however has limited use of her left hand and limited reach.

Vocational

Kaye is currently employed on a part time basis, three days per week. Her position primarily involves date stamping bills. She has a basic knowledge of *Microsoft Office* programs and would like to look for new employment that is more challenging enables her to apply her computer skills.

Assessment

Kaye's assessment identified that she has a laptop at home. She accesses this by using the standard laptop keyboard and the touch pad.

Issues identified	Solutions
<ul style="list-style-type: none">❖ Slow typing speed using the right hand only.❖ Unable to hold down multiple keystrokes simultaneously.❖ Difficulty using a standard mouse. Unable to complete click and drag functions.	<ol style="list-style-type: none">1. Use of a <i>Cherry Compact keyboard</i> positioned to the right.2. Use of a <i>Cherry keypad</i> when completing high levels of numeric data entry.3. Use of <i>StickyKeys</i> settings in <i>Windows</i>.4. Rate enhancement software such as <i>WordQ</i> word prediction and <i>WordBar</i> word bank.5. <i>MaxTRAC</i> trackball.6. Customisation of <i>Windows</i> mouse functions.

Kaye was provided with training in the software and hardware provided.

Outcome

The assessment provided Kaye with an opportunity to increase her speed of typing and to increase her mouse control. She will now commence job seeking for work that involves computer based employment. This will also involve approaching her existing employer about other positions that may be available within the same organisation. Kaye will be able to demonstrate that she is already proficient in accessing the computer and undertaking tasks using the main *Microsoft Office* software programs.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Kaye was already employed but was bored with her position. She wanted to undertake work which was more challenging but lacked confidence in her abilities to make this change.</p> <p>After</p> <p>Kaye expressed greater confidence in approaching her existing employer for more challenging roles and in looking for employment that matches her interests and is more satisfying.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Kaye had some basic computer knowledge and skills however her speed and accuracy on the computer was a barrier to using those skills in employment.</p> <p>After</p> <p>The provision and customisation of AT enabled Kaye to maximise her productivity. This increased the likelihood that her computer skills can be applied to a job.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>Kaye has now commenced job seeking. She is also seeking a higher grade position with her current employer. Her employer is now considering this as a direct result of her increase in productivity.</p>

Frank

Background

Frank is a 41 year old male with a traumatic brain injury. He sustained the injury in a sporting accident in 2003. The injury resulted in right hemiplegia and speech difficulties. As a result he has minimal use of his right arm including reach and fine motor difficulties.

Vocational

Frank's work history consists of bank teller and personal assistant positions. He was able to type up to 80 words per minute prior to his accident. Frank was receiving assistance from a PAGE to look for employment at the time of the assessment and was ideally looking for a position that utilised his computer knowledge and skills. He was however concerned that his typing speed with one hand was now significantly reduced.

Assessment

Frank's assessment was completed at his home. Frank demonstrated that using both hands to type on a standard keyboard was very slow. Tone in Frank right arm increased and it became more difficult to type when he tried to increase his speed of typing or became frustrated.

Issues identified	Solutions
<ul style="list-style-type: none">❖ Slow typing speed using the left hand only.❖ Unable to hold down multiple keystrokes simultaneously.❖ Difficulty using a standard mouse in the right hand.	<ol style="list-style-type: none">1. <i>Kensington Expert Mouse trackball</i> with wrist support.2. <i>Half Qwerty Keyboard</i> for use in the left hand only.

Frank was provided with equipment and appropriate training. He developed competence in the use of the *Half Qwerty Keyboard* using left hand touch typing only and significantly increased his speed of typing.

Outcome

At the time of the assessment Frank was about to commence employment in a library, assisting with stacking shelves. This position was short term only and his preference was look at more computer based employment in the future. The computer technology provided was successful in significantly increasing Frank's speed of text entry and the accuracy of mouse use.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Frank was motivated to work but lacked confidence in his speed of computer use. He found this frustrating which made it even more difficult.</p> <p>After</p> <p>Frank's confidence increased significantly as a result of the assessment especially as he was able to learn new skills.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Frank ability to look for work in his interest area was limited by his difficulties accessing a computer.</p> <p>After</p> <p>Frank secured short term employment as a Library Assistant. Frank's PAGE reported that the computer technology increased her confidence in his ability to obtain employment after the short term library position. She indicated that it is also likely that it will enable him to apply for other positions in the library that involve computer data entry. The technology has therefore increased his employment options.</p> <p>His PAGE said <i>"I'm now confident that we can find computer related work for Frank once this temporary job ceases. Before the assessment, we had very few other options available"</i>.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Frank will look for computer related employment at the end of the library assistant position.</p>

Andrew

Background

Andrew is a 29 year old male who has cerebral palsy. He mobilises in a motorised wheelchair with a left-mounted joystick. He has very restricted upper limb movement but quite good head control. He has very limited speech capability, with virtually no articulation, but uses this, with facial expressions to communicate.

Vocational

Andrew is an intelligent young man. He has undertaken a range of computer courses at TAFE, gaining qualifications in desktop publishing and web pages creation. He is also proficient in using Word, Excel, Access and email. However, apart from a few voluntary activities, Andrew has been unsuccessful in obtaining paid employment. He has experienced many knock backs in his search for a job, to the point of frustration and disillusionment.

Assessment

The assessment took place at a community centre near his home. Andrew has used *WiVik* on-screen keyboard for 8 or 9 years. Options are scanned and Andrew activates his choice through a head switch. This is used for text entry and mouse control. He was observed to be efficient using this process for text entry. However he has a new computer with *Vista* operating system; there has been no upgrade made available yet for *WiVik*.

WiVik has limitations as a method of control over mouse functions. Given Andrew's interests in areas such as desktop publishing and web design, this was a major impediment to his employability.

We trialled the *SmartNAV* infrared pointing system, which is based on head movement. It incorporates a "dwell click" feature whereby a click is activated automatically after a pre-set period of time, without the user having to hit a switch. He was interested to trial this. Training was provided and a trial commenced.

Some weeks later we revisited Andrew and found that the trial had been successful. Further, he used the *SmartNAV* to select letters on the on-screen keyboard directly, rather than having them scanned. His spirits have been buoyed by these changes and he has renewed enthusiasm for his job search.

Issues Identified	Solutions
<ul style="list-style-type: none"> ❖ Using WiVik but not compatible at this stage with Vista. ❖ WiVik was slow and imprecise for detailed mouse control 	<ol style="list-style-type: none"> 1. Supplied <i>SmartNAV</i> system and training. This provided a better mouse control system. He was able to use the dwell-click feature instead of hitting a switch with his head. 2. The proficiency Andrew gained in using the <i>SmartNAV</i> for mouse control also enabled him to use a direct selection method for selecting letters in an on-screen keyboard. This was more comfortable and efficient than his previous system.

Outcome

Andrew does not have a job as yet. The time span of this project does not allow us to monitor his progress. But it is clear that his productivity has increased dramatically due to the PET introduced to him as part of this project. His enthusiasm for job seeking has been elevated as a result. This story is unfinished...

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Andrew has had numerous knock-backs in his search for work.</p> <p>After</p> <p>Andrew's belief in his own productivity increased dramatically. His motivation to seek work increased significantly.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Andrew's options were narrowed because of his limited productivity, especially with respect to mouse functions.</p> <p>After</p> <p>Andrew is now more productive in his chosen areas of work.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Before & After</p> <p>Andrew's increased productivity and motivation have yet to translate into a job. It is early days however.</p>

Sam

Background

Sam is a 41 year old who has C3 quadriplegia as the result of an accident in 2000. He has no upper or lower limb movement but has good head control. His underlying condition is stable but he has experienced periods of ill-health related to his spinal injury. Sam has strong personal skills.

Vocational

Sam was qualified as a computer systems engineer prior to his accident. Since his accident he has made two attempts to enter the workforce - a voluntary position in 2001 and then a temporary part-time position with a disability organisation in 2004-5. He feels he was not sufficiently productive at those times to sustain employment. Illness also intervened.

Ability Technology has been involved with Sam since his rehabilitation in Sydney. We undertook an assessment for the CRS at that time, with the result that Sam was provided with some AT, including speech recognition. This early experience with technology had a profound impact on Sam's life. Without it, he said, he would have become isolated and "would have suicided".

Assessment

We renewed our involvement with Sam as part of this project. An assessment took place at a community centre where Sam was undertaking some voluntary work. We advised him on the latest upgrades to his speech recognition software (*Dragon Naturally Speaking Professional*). He was shown the most recent developments in desktop microphones that would increase his independence when using speech recognition.

He also successfully trialled the *SmartNav* head-mounted mouse control system. He found this more effective than using speech recognition for mouse functions. The *QuadJoy* mouth controlled mouse device was also trialled, but was difficult to position in relation to his wheelchair control.

Sam adapted to these enhancements quickly, given his computer experience and background. He was however surprised at the increase in his productivity that resulted.

Issues Identified	Solutions
<ul style="list-style-type: none"> ❖ Older speech recognition software was not sufficiently accurate for maximum productivity. ❖ Headset microphone requires someone else to affix and remove. ❖ Mouse control through voice commands was limited in its effectiveness 	<ol style="list-style-type: none"> 1. Updated speech recognition to latest version of <i>Dragon Naturally Speaking Professional</i>, with a significant increase in productivity. 2. <i>Andrea Superbeam Array</i> desktop microphone, with the result that his independence was increased. 3. <i>SmartNav 3</i> infrared head-mounted pointing system, giving much more accurate control over mouse functions.

Introductory training in the operation of these new options was provided to Sam during the assessment. No further training was required, as Sam was well able to continue his skill development independently.

Outcome

Events moved quickly following our assessment of Sam’s technology requirements. His speed of text entry increased to 71 wpm, allowing for corrections. He became more involved in the disability support organisation with which he had been doing some voluntary work. He stated that his increased productivity “*gave me confidence in who I was... re-established who I am*”. He also felt that his productivity, evident through his communication through email and telephone (VoIP) “*gave them greater respect*” for his capabilities. With the help of PET he felt that his “*disability disappears*”.

Eventually, during the period of this project, Sam was offered a part-time job with the organisation where he had been doing voluntary work. Sam’s new employer mirrored his own perceptions. While recognising his impressive personal qualities, they were impressed with Sam’s “*confidence with the technology*” which was “*very reassuring*”. The job involved a lot of communication via technology, such as email and telephone, so Sam’s rising proficiencies in these areas came increasingly under notice. In relation to Sam’s use of technology, the manager of this organisation stated that “*to see it in action is the key*” and that it was “*valuable to be able to demonstrate, set it up and show it*”. She even commented that the experience with Sam had encouraged her to consider employing other people with a disability, as well as noting that she had shared her positive experience with other employers.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Sam had several limited attempts to work but had not worked for 2 years prior to this project.</p> <p>After</p> <p>Sam's belief in his own productivity increased dramatically. His motivation to seek work increased substantially.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✗</p>	<p>Before & After</p> <p>Sam was already doing voluntary work in the organisation in which he subsequently gained employment.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Sam's productivity and resultant self-belief were insufficient for him to secure lasting employment.</p> <p>After</p> <p>New technology increased Sam's productivity and motivation significantly and this came under the notice of the organisation where he was undertaking voluntary work. A job offer ensued and he has now been employed part time for 2 months.</p>

Tony

Background

Tony is a 44 year old male who sustained multiple injuries in a motor cycle accident in 1985. This resulted in a left lower limb amputation, a traumatic brain injury and left hemiplegia, with high levels of spasticity in his left arm. Tony has also more recently been diagnosed with Glaucoma and has noted as significant deterioration in his vision. Tony mobilises in a wheelchair and has recently made a decision not to drive due to his vision loss. Tony's strengths are his communication skills and a "photographic memory".

Vocational

Tony has a strong work history, holding three switchboard operator positions for 10, 8 and 3 years respectively since his accident. Tony reported that he has not worked since 2001 however recently has had a successful application with a call centre. Tony attempted an initial trial period in the position however this was unsuccessful. His employment consultant reported that there was a question over his interest at the time however Tony stated that it was because he could not see the keyboard or the screen due to his vision impairment. The call centre have since indicated that they would be willing to give Tony another trial in the position if he passes the recruitment process again. The position involves receiving phone calls from the public and computer data entry regarding customer orders.

Assessment

Tony has had limited experience using a computer but understands the basic operations. He has used the numeric keypad at work when operating a switchboard and looking up contact details on a data base. Tony used a hunt and peck technique with his right hand when typing and is unable to use his left hand to access a keyboard. Tony's vision was the main barrier to computer access as he was unable to see the screen or the standard keyboard adequately. The assessment was completed at his home using a laptop computer.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Unable to read standard keyboard and visual display due to vision impairment. ❖ Unable to hold down multiple keystrokes simultaneously. ❖ Slow typing speed with right hand only. Limited knowledge of computer keyboard layout. 	<ol style="list-style-type: none"> 1. <i>BigKeys</i> keyboard 2. Customisation of visual display in <i>Windows</i> environment. 3. Once Tony has learnt the keyboard layout he may be able to progress to a one handed typing technique. 4. <i>X-Keys</i> programmable keypad. Multiple keystrokes can be programmed so that they can be accessed with one key stroke. 5. <i>Biggy</i> cursor to enable use of a large cursor with colour contrast.

Outcome

The assessment identified ways to enable Tony to access a computer. He was provided with preliminary training at the time of the assessment regarding the technology recommended. The technology was not however provided as preliminary liaison with the employer indicated that these modifications would not meet his needs at the call centre. The call centre does not use a *Windows* based computer system. The keyboard used requires 24 function keys and the screen display is very complex with multiple frequently used pop up menus. Simply increasing the size of items on the screen would mean that many options are not displayed on the screen. Tony and his employment consultant were therefore referred on to the Workplace Modifications Scheme for further assessment in the workplace and to Vision Australia as specialist screen readers may be of benefit for Tony.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Tony has a strong work history and reported that he was motivated to work. He identified that the main barrier to employment was his vision however recent difficulties at a call centre trial position were perceived by some as a lack of interest in the position.</p> <p>After</p> <p>Tony has renewed interest in the call centre position and has presented as highly motivated to re-apply.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Tony was unable to pursue computer based employment due to his vision impairment.</p> <p>After</p> <p>Tony's interest in re-applying to the call centre for a position was renewed by identifying that technology is available that would be able to support him in the role.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✓</p>	<p>Preliminary feedback from the employer indicated that they are keen to allow Tony to reapply for the position if there is technology available that would enable him to undertake the duties proposed.</p> <p>We are continuing to find solutions for Tony even though the time frame for this project has concluded.</p>

Bob

Background

Bob is a 21 year old male who has cerebral palsy. He requires a powered wheelchair for mobility and controls this using a joystick. His upper limb movement and fine motor control is limited by spasticity in his upper limbs. Bob wears glasses and has difficulty with his vision. He is unable to write. Bob attended a main stream school and had additional classroom teacher support to assist with his learning however he does present with significant literacy difficulties. He has a 1:1 literacy tutor session once a week for remediation of these difficulties.

Vocational

Bob recently completed school and was now starting to consider goals around work and his vocational interest areas. Bob expressed an interest in office based work that involves the use of computers in general however was largely unsure of his key interest areas.

Assessment

Bob was already familiar with the use of computers. He has a *BigKeys* keyboard and a track ball which he uses at home and used at school. He had a basic understanding of the main computer operations however his ability to construct text and read information on the screen is impacted on by his vision and literacy difficulties. Whilst it is important that he continues with remedial work to address the literacy difficulties, the use of AT was explored to assist him to compensate for these difficulties and to reduce the impact they have on his productivity. Given that Bob is unable to write, the use of a keyboard is an essential method by which he can communicate in writing. During the assessment, Bob initially demonstrated low interest levels in the computer activity tasks. His motivation and interest was however improved with repeated success on some activities and with voice output from the computer.

Issues identified	Solutions
❖ Literacy difficulties	1. <i>BigKeys</i> keyboard
❖ Unable to use a standard keyboard	2. <i>MaxTRAC</i> trackball
❖ Unable to use a standard mouse	3. <i>Co:Writer Solo</i> software program
	4. <i>Write:Out Loud Solo</i> software program

❖ Slow typing speed	
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Bob is already able to use the *BigKeys* keyboard and *MaxTRAC* trackball. His literacy difficulties were identified as the overriding limitation in his ability to use the computer at a level appropriate for employment. *Co:Writer* and *Write:Out Loud* are software programs that, in combination, use word prediction and spell checking with voice output. The tool bars and display were customisation for Bob. Any text on the screen can be read out loud, including his typing, with each keystroke. This was observed to impact considerably on his ability to construct a sentence and to select the appropriate spelling for a word. A follow up training session was provided for Bob and his support person. The software can also be used in his literacy tutorials. The software proved to enhance Bob’s productivity when using the computer and can be used in the workplace with a telephone headset if required. We have recommended that his technology needs are reviewed again in 3-6 months where his progress and work abilities in relation to computers will be reviewed.

Outcome

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Bob had expressed some interest in setting goals surrounding vocational training and work however lacked interest in specific vocational areas. He said he was interested in computers but was too slow.</p> <p>After</p> <p>Bob’s motivation and confidence using a computer improved as a result of the assessment and provision of technology. The software provided direct feedback to Bob and provided opportunities for success that impacted on his confidence and motivation.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Bob’s support worker was starting to explore employment options with him at the time of the assessment however was concerned about how his literacy difficulties would impact on his ability to work.</p> <p>After</p> <p>Although Bob is in the prevocational phase of job seeking, Bob’s support worker stated that the technology provided will be a critical stepping stone to work readiness and will increase his employment options. It not only gives him access to development of computer skills, it will also be an important means of communication and compensation for his literacy difficulties.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Bob requires further training and support before he will be able to commence job seeking, however is now progressing along that road.</p>

Mandy

Background

Mandy is a 33 year old who has athetoid cerebral palsy. She requires a wheelchair for mobility but she is unable to control it independently. She is strapped into the wheelchair at the hips and at both feet. She has very little control over her upper limbs but has slightly more control over her head movements. She claimed to have fewer erratic movements when she is watching television or in other ways distracted. Her speech is intelligible, with effort, but is also affected by stress. She presented as a spirited and intelligent person who is extremely frustrated at her inability to be productive and to obtain a job.

Vocational

Mandy has previously presented at disability awareness seminars however has not otherwise been in paid employment. She is highly motivated to obtain work. She recognises that access to a computer is the only other way she could possibly enter the workforce.

Assessment

The assessment took place at the residential centre where Mandy lives. Mandy had tried using *WiVik* (an on-screen keyboard) in combination with a head switch back in the early 1990s. However she found this too slow and frustrating and gave it away. She does not have a computer at present.

A chin control joystick was trialled during the assessment, but this was not successful.

We explored with her the possibility of her using speech recognition, but in “spell mode”. With this setting activated, she would only have to articulate the letters of the alphabet to be able to create text. She was able to speak these letters informally, but tensed during the actual speech recognition trial. A second attempt at a later time was also unsuccessful. Her voice also boomed during these trials, causing distortion when using a headset microphone; a desktop microphone would be required.

At this stage we learnt that Mandy had not had speech pathology assistance for over 10 years. As the next step we have urged her and those who support her to pursue speech pathology, with the aim of assisting her to be able to speak the letters of the alphabet more clearly. Our solution will then be effective for her.

Issues Identified	Solutions
<ul style="list-style-type: none"> ❖ Mandy is unable to use her upper limbs for computer access. ❖ She has previously found a head switch to be unreliable and ineffective for her. ❖ Her speech is not sufficiently clear for normal speech recognition. 	<ol style="list-style-type: none"> 1. Mandy was almost able to speak the letters of the alphabet with sufficient clarity to use <i>Dragon Naturally Speaking</i> in Spell Mode. 2. She would then be able to use various rate enhancement programs to accelerate her text entry. 3. We have arranged for her to receive speech pathology support over the coming months, in order to improve her speech clarity sufficiently to enable her to use Spell Mode in <i>Dragon Naturally Speaking</i>.

Outcome

Our assessment raised Mandy's hopes that her dormant talents would at last have an avenue of expression. Although we were able to identify a technological pathway for her to access a computer, she was unable to pursue it at this time.

We are confident that Mandy will now be motivated to undertake speech pathology and we look forward to following up her case in the months ahead.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Mandy had no options for effective computer access.</p> <p>After</p> <p>Mandy knows that there is a possibility that she could use speech recognition in Spell Mode in the future. This has given her hope.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✗</p>	<p>Before & After</p> <p>Mandy has no employment targets as yet.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Not Relevant</p>

Steve

Background

Steve is a 25 year old male with quadriplegia. He sustained a cervical spinal injury 14 months ago in a motor vehicle accident. Whilst Steve is medically fit to return home he was still an inpatient in hospital at the time of the assessment. This was due to significant delays in modifying his home for wheelchair access. Steve uses a powered wheelchair to mobilise. His injury has left with him with no movement or sensation in his lower limbs, his sitting balance and posture has been effected and movement in his upper limbs is limited. He does not have any active grasp in his hands.

Vocational

Prior to his injury, Steve worked in manual technical roles in water and electricity. He had just commenced an electrical apprenticeship at the time of the accident. Steve is currently receiving vocational assistance to identify new goals for work even though he is still in hospital. He said I *“can’t do hands on”* work anymore but am interested in *“something involving computers”* or *“teaching”*. He suggested that even if he chooses to undertake further education he would like to find some part time work whilst he is studying.

Assessment

Steve’s assessment revealed that he was introduced to technology to assist him to write and access a computer during his initial stay in hospital. His Occupational Therapist arranged trial of a mouth controlled joystick and speech recognition. He has not however had access to funding to purchase this equipment or to receive adequate training. As a result he is unable to access a computer or write. Even though he is still in hospital he expressed a preference for pursuing vocational goals. The assessment provided the opportunity to trial and identify more productive and flexible options for accessing a computer and compensating for handwriting difficulties.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Unable to use a standard mouse and keyboard. ❖ Unable to write. ❖ Unable to pick up a telephone handset or dial phone numbers. ❖ Unable to don headset for speech recognition software. ❖ Insufficient training to achieve competence in the use of speech recognition software. 	<ol style="list-style-type: none"> 1. <i>Kensington Expert Mouse Trackball.</i> 2. Investigate wheelchair tray options for positioning of trackball. Steve and Occupational Therapist to liaise with Seating Service. 3. <i>Dragon Naturally Speaking software with desktop microphone Andrea Superbeam Array.</i> 4. Onscreen keyboard <i>WiVik</i> with word prediction <i>WordQ</i> software. 5. Bluetooth headset for <i>VoIP</i> and voice dial hands free mobile phone.

Preliminary training in the operation of these new options was provided during the assessment. The AT report enabled Steve's Occupational Therapist to pursue available third party funding for the equipment recommended. Equipment was therefore not provided through the research project.

Outcome

Computer access as an alternative to handwriting, and as a skill in itself will be a critical component of Steve's vocational retraining and job seeking. His pre injury employment was primarily in manual work and he is no longer able to pursue this. Although the recommended equipment was not loaned to Steve through the project, an alternate funding source was identified that could provide the equipment outright. This served to highlight the importance of having access to an AT assessment which provided the opportunity to trial the most appropriate equipment and to document this so that funding could be sought. It also highlighted the importance of providing sufficient training to use the equipment, as the provision of speech recognition software without training would be not sufficient.

Access to the technology was seen by Steve and his Occupational Therapist as one the first critical step's in looking for new work opportunities.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Steve was beginning to identify areas of interest outside manual work but was unable to pursue these as he could not write or access a computer. He was still in a relatively early stage of adjustment post injury.</p> <p>After</p> <p>The provision of technology will enable him to pursue the interests he has identified. Without the technology this will not be possible. Steve anticipates that this will impact on his confidence.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Employment history in manual work which he is unable to return to.</p> <p>After</p> <p>Computer technology has increased his work options. The assessment process identified the potential for development of new skills and related employment options.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>It is essential that Steve has the opportunity to access and master the technology before he can start looking for work.</p>

Joan

Background

Joan is a 43 year old female with cerebral palsy. She mobilises in a powered wheelchair and has limited reach and hand function. She is unable to use her right hand to grasp, but is able to use the base of her left hand to control her joystick and to operate a switch.

Vocational

Joan has undertaken training in the use of *Microsoft Word* and *PowerPoint*. She was employed for short period of time approximately four years ago in a data entry position. She has a laptop at home and uses this with a *PC-trac* trackball and an onscreen keyboard, *WiVik*. The software and hardware is dated and is no longer working effectively. Joan has recently started to consider her work options and would like to start looking for work again. She reported that she has been interested in graphics for some 20 years however has never had the opportunity to take this further. Otherwise she would like to consider employment that involves using a computer.

Assessment

The assessment was completed at a community program office. Her computer access options were reviewed with a particular focus on her ability to undertake graphic based tasks. Graphics requires a high level of accuracy using a mouse device.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Slow typing speed using the onscreen keyboard. ❖ Unable to complete click and drag functions using a mouse. ❖ Accuracy using a mouse needed to be maximised. 	<ol style="list-style-type: none"> 1. Customisation and upgrade of <i>WiVik</i> with <i>WordQ</i> word prediction. 2. Rate enhancement software such as <i>WordBar</i> word bank. 3. <i>Switch adapted MaxTRAC</i> trackball. External jellybean switch to be used in the right hand to perform the click and drag function. 4. Customisation of mouse functions in <i>Windows</i>. 5. Self paced computer based training in <i>Photoshop Elements</i>.

Outcome

Joan was provided with training for the hardware and software recommended. She demonstrated sufficient mouse control to undertake further training in the area of graphics. The rate enhancement software also increased her productivity with text entry. At this stage Jenny would like to focus her effort on training in the area of graphics. She is aware that this is a highly competitive industry and that an initial work experience placement would be an appropriate stepping stone to employment. The computer technology provided will enable her to pursue this area of interest.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Joan had been interested in pursuing employment in graphics for some 20 years. She had not worked for four years.</p> <p>After</p> <p>The provision and customisation of computer technology provided sufficient mouse control to pursue training in graphics served to increase her confidence and motivation to reconsider employment. The technology enabled her to tap into her areas of interest.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✓</p>	<p>Before</p> <p>Joan had not been able to pursue her interest in graphics work due to the quality of her computer access options and lack of training in the area.</p> <p>After</p> <p>The provision and customisation of computer technology provided the mouse control she requires to pursue training and ultimately employment in graphics.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✗</p>	<p>Joan needs to undertake graphics training. She will then look into work experience opportunities as a stepping stone to employment.</p>

Molly

Background

Molly is a 38 year old female who had a stroke in September 2005. This resulted in right hemiplegia, loss of short term memory and speech difficulties. As a result, Molly has great difficulty using her right arm in functional tasks and reported right shoulder pain. She walks with a limp. Molly is currently undergoing physiotherapy treatment and has made great gains in speech therapy. Molly is left hand dominant.

Vocational

Prior to her stroke, Molly was employed as a personal assistant on a full time basis. Her work involved computer and telephone administrative duties and she was a touch typist. Molly advised that her employer held her position open for her for a period of time after the stroke however she was unable to return to the position. Molly is now seeking work in light processing with the assistance of a PAGE as this was the type of work recommended in her Centrelink Job Capacity Assessment. Her PAGES suggested that she participate in the AT Assessment to determine if she could also consider returning to office based employment as this is more consistent with her transferable work skills.

Assessment

Molly's AT Assessment was completed at her home. Molly was initially very nervous about using the computer again however with minimal prompting she was able to create a *Microsoft Word* document and undertake basic text entry and formatting. She used her left hand only for typing and mouse use. She attempted to use her right arm to assist however this significantly increased her reported discomfort levels and was ceased.

Issues identified	Solutions
<ul style="list-style-type: none"> ❖ Slow typing speed using left hand only. ❖ Does not have access to a computer at home. ❖ Unable to hold down multiple keystrokes simultaneously. ❖ Fatigue and left upper limb discomfort accessing a computer. Some memory difficulties recalling how to use a computer and related software. ❖ Reduced confidence in abilities, skills and knowledge related to computer use. 	<ol style="list-style-type: none"> 1. Use of a <i>Cherry Compact keyboard</i> to reduce the distance the left hand needs to move to access keys and to enable ergonomic positioning to maximise efficiency of movement when using the keyboard. 2. <i>Five Finger Typist</i> training software. 3. Customisation of <i>Microsoft Windows</i> including use of <i>StickyKeys</i>, <i>AutoCorrect</i>, <i>AutoText</i> and <i>AutoFormat</i>. 4. Use of a separate <i>Cherry keypad</i> (numeric) for numeric data entry. 5. Education and advice regarding ergonomic workstation set up, pacing and energy conservation. 6. 1:1 retraining in <i>Microsoft Office</i> computer software package.

Outcome

The assessment identified strategies that would enable Molly to reconsider employment that involved the use of computers. Her recall of how to use *Microsoft Word* and the *Windows* desktop with minimal prompting was promising and with a safe and supportive learning environment we believe this would be a suitable option for her if she were interested. Feedback regarding these findings and recommendations was given to her PAGES employment consultant.

Molly decided not to follow through with these recommendations. She expressed that her preference was to pursue employment that does not involve computer/office based work. She expressed fear that computer based work would increase her right shoulder pain levels. Strategies to minimise the risk of this occurring were presented to Molly however she declined to trial these options.

<p>1. Increase motivation to seek work?</p> <p style="text-align: center;">✘</p>	<p>Before</p> <p>Molly expressed very low confidence in her ability to obtain employment post injury although she and her employment consultant reported she was motivated. She stated <i>“I don’t know what I can do anymore”</i>. <i>“I used to use a computer but now I have forgotten”</i>.</p> <p>After</p> <p>Confidence in her ability to obtain employment was not impacted on by the AT Assessment. She chose not to pursue computer based employment.</p>
<p>2. Increase employment options?</p> <p style="text-align: center;">✔</p>	<p>Before</p> <p>The employment consultant reported that Molly was motivated but very low in confidence. She reported that the Job Capacity Assessment by Centrelink recommended Molly look for low skilled work on a part time basis. Her speech however has improved considerably since this assessment.</p> <p>After</p> <p>The assessment increased Molly’s employment options by providing strategies to pursue computer related work. It did not however motivate Molly to consider this as an employment option at present.</p>
<p>3. More positive employer response?</p> <p style="text-align: center;">✘</p>	<p>Molly is not looking for work that involved the use of computer technology recommended.</p>

Conclusion

The WMS, as expanded and modified in 2006, provides effective support for modifications to be made at workplaces to remove barriers to the employment of people with a disability. As this study has shown, the WMS scheme incorporates at least two forms of technology – one that is anchored in the workplace and the other that can enhance the productivity of a worker with a disability. The former must, of necessity, await the employment of the worker involved; the latter could take place prior to a particular employment prospect, even in the early stages of job seeking.

The computer revolution has two consequences for programs such as the WMS. First, it means that jobs increasingly have a computer component. Job access for people with a disability will increasingly involve computer access. This does not mean that the only jobs that are available involve computers. We are speaking only of trends.

Second, the revolution in IT has been to some extent mirrored by developments in assistive technology (AT). New computer access solutions are becoming available that will enable almost all people with a disability to make gains in productivity and independence through new technology.

It is therefore not surprising that these developments should raise issues in relation to a scheme that was developed in essence at a different time.

This study has shown that PET can assist in the employment of people with a disability in three ways:

1. **It can increase a person's confidence and motivation to seek work.** It does this by increasing their productivity and their belief in their own ability. All participants in the project benefited in this way. For some it revived their hunger for work after the disillusionment of many knock backs. For some it inspired a desire to move from voluntary work to paid work. For some it allowed long-held interests to be expressed in a vocational direction. For several participants our assessment has given them clear and precise pre-vocational targets, in areas such as literacy and speech pathology.
2. **It gives them (and those who assist them to find work) a wider choice of possible employment options,** in comparison to their options prior to the availability of such technology. While some participants already had entrenched vocational ambitions, for others the empowerment of new technology meant that new directions were opened up. Several developed aspirations to move from basic work to higher level work, using computer technology.
3. **It makes them more attractive to employers.** All other things being equal, an employer will be more inclined to employ a person whose productivity has been expanded by technology, compared with someone without such a boost in their productivity. In spite of the short time frame of this project, we were able to assist several of the participants into paid positions, with several others moving into work experience situations. Employers commented frequently on the fact that the PET influenced their decision to employ the person. It was also clear that for some employers, the availability of assistive technology expertise was very re-assuring.

This does not of course mean that this will be a solution to the employment needs of wide numbers of people with a disability. It also does not mean that the early adoption of appropriate PET is the most important factor in the employment journey of people with a disability; as we know, there are many factors that people must contend with as they seek to move into employment. But it is sufficient to state that for some people, the availability of PET will be decisive.

There are other benefits as well. The increased presence of people with a disability, able to present their full productive talents through PET, is likely to stimulate awareness that people with a disability can contribute effectively at work. The experience of one employer is likely to be shared with others.

There were other supplementary findings that emerged in this study. These are discussed below:

1. The services that are required for the effective use of PET are essential if the person is to gain maximum benefits for available technology. They need accurate assessment; customisation of equipment and software; training in its proper use; technical support in the event of difficulty and, in some cases, follow-up and review.
2. There are limited avenues for people, on their own, to keep up with the latest developments. Several people in this study had solid computer backgrounds yet were unaware of the latest PET that would be beneficial for them. It is easy to stick with a viable solution and remain ignorant of optimum solutions.
3. The process of becoming more productive through PET can take time, sometimes years. Through such a process people can lose heart unless their spirits are buoyed by news about encouraging developments that could benefit them. Assistive technology is going through rapid changes yet the channels through which such information becomes available to those who need them are few.
4. PAGES in general have limited experience with PET. There are flickers of awareness among them on certain issues, but in general their knowledge is weak and sometimes very outdated. The old adage, *You don't know what you don't know*, finds an unfortunate resting place among PAGES.
5. Several potential participants in this study refrained from joining the study because they feared losing their disability pension if they registered with *Centrelink*. This means they remain outside the Government support services in this area. If such a view is held by many people with a disability then it may need to be addressed urgently.

The question we turn to now is: how could these findings be reasonably incorporated into government programs?

Policy Recommendations

How could the ready availability of PET be funded in such a way that the Government was not exposed to undue risk? It should be noted that the existing WMS already harbours some risk for the Government, in that workers could take with them items provided for their employment, after only 13 weeks in the job. Nevertheless the portability and wider usefulness (beyond work settings) of some PET does raise issues of security.

There are some important issues that emerged in this study that will provide guidance for considerations in this matter:

1. Much of the PET is not overly expensive.
2. PET can sometimes be funded from other sources.
3. The process by which PET is identified and applied to particular individuals (usually referred to as an “assessment”) is of critical importance. The expertise to undertake this process is specialised.
4. Services such as customisation and training are more important and cost considerably more, in most cases, than the hardware and software itself. This is not surprising to those in this sector, but it does have implications for policy proposals in this area.
5. The key services – assessment, customisation, training and technical support – are not items that can be “sold” by a user. They require effort and commitment by the user and are unlikely to be undertaken frivolously.

With these factors in mind, we would suggest the following for consideration by the Government as a form of expansion of the WMS. Some of this would already be encompassed by an expansive reading of the existing guidelines.

1. PET could be funded under an expanded (and possibly renamed) WMS for those people with a disability who are seeking work. In some cases, a computer would also need to be supplied to support the use of the PET.
2. The funding would only be available for those who are working with a PAGE who can confirm their genuine desire to seek work.
3. The PET would only be provided following a suitable assessment of needs. For people in remote areas, such an assessment may be able to take place via web cam.
4. The PET items themselves would be provided on a loan basis from a national loan pool. PAGES would be responsible for this equipment.
5. Key ancillary services, such as customisation, training and technical support would be provided, sufficient to achieve and sustain the productivity benefits of the PET.
6. If the person gained employment, the PET would be confirmed as if it had been provided under the post-employment WMS. No additional cost would be involved (apart from customisation for specific job requirements a particular job).

7. If the person did not achieve employment, some time limit would need to be placed on their use of the PET. This should be generous, as it can take some time for benefits to become substantiated.

To advance these proposals to the next stage would require a range of steps. These could include:

1. The development of ideas regarding how the national loan pool could be administered and funded.
2. The identification of a national network of expert centres that could supply the specialised assessment, customisation, training and technical support services.
3. An evaluation of web cam assessments. This could be an important area that may help reduce the cost of providing such a service to people in regional and remote areas.
4. The development of simplified assessment formats that could contain the cost of such services for the Government. Long-winded reports would risk blowing out the cost of assessments.



Dr Graeme Smith



Gemma McDonald

B App Sc (Occupational Therapy) Hons

20 June 2007



RESEARCH PROJECT

PRODUCTIVITY ENHANCING TECHNOLOGY FOR PEOPLE WITH A DISABILITY

INFORMATION SHEET FOR PARTICIPANTS – JOB SEEKERS

We are undertaking a research project and invite your participation. The research is supported by the Employment Innovation Fund and funded by the Department of Employment and Workplace Relations.

The project looks at ways in which modern technology can assist a person with a disability to obtain employment. We are particularly keen to see how it might influence an employer's decisions to give a person a job. We are also interested in the way it might motivate a person with a disability in their job search. At present, funding available can assist a person to obtain this technology once they obtain employment. *This project is specifically looking at the impact of providing this equipment **before** you obtain employment.*

What sort of equipment might be involved ?

Equipment could include special keyboards, alternative mouse devices, speech recognition software, personal organisers and memory aids.

What are we inviting you to do?

- We will offer you free advice on what special computer related equipment could increase your productivity. We will also supply the equipment (for the duration of the project and possibly beyond) and train you in its use. The assessment can be completed at your home, your Disability Employment Service office or at our office. There is **no cost to you** for the advice or equipment.
- We would like to gather information about how your disability and technology equipment impacts on your ability to obtain employment. This would involve speaking with your Disability Employment Service or Vocational Rehabilitation Provider before and after providing the technology equipment and once you obtain employment. We may request a copy of your Job Capacity Assessment and ask you questions about your work skills.

ABILITY TECHNOLOGY LIMITED

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Ph: 02-9907-9736 Fax: 02-9907-9599

Email: info@ability.org.au Web: www.ability.org.au

- Once you have obtained employment, we are interested in speaking to your employer to see if the technology influenced their decision to employ you. We appreciate that being in a new job can be a delicate situation so we would only undertake this with your permission and you are free to change your mind at any time.

Your decision to participate in the project is entirely voluntary. All information in the project will be completely confidential. No names of individuals or organisations involved in the project will be published. You can also withdraw from the project at any time.

If you are interested in participating in the project please complete the consent form below and contact Gemma McDonald (Occupational Therapist, Ability Technology) or Dr Graeme Smith (Executive Director, Ability Technology) on (02) 9907 9770 or info@ability.org.au.

Many Thanks



Dr Graeme Smith
Executive Director
Ability Technology Limited
21 March 2007

I have read and understood the above information and agree to participate in this project.

Name: _____

Signature: _____ Date: _____

Witness: _____

Signature: _____ Date: _____



RESEARCH PROJECT PRODUCTIVITY ENHANCING TECHNOLOGY FOR PEOPLE WITH A DISABILITY

INFORMATION SHEET FOR PARTICIPANTS

Disability Employment and Vocational Rehabilitation Services

We are undertaking a research project and invite your participation. The research is supported by the Employment Innovation Fund and funded by the Department of Employment and Workplace Relations.

This is a pilot study which explores the impact of productivity-enhancing-technology (PET), such as computer assistive technology, on employment outcomes for people with a disability. The emphasis will be on providing PET *prior* to seeking employment rather than after a person has secured a position.

The research project will focus on three issues:

1. Does the provision of technology before employment, increase the person's motivation and confidence in their own capacity to be employed ?
2. Does it increase the person's employment options ? E.g. are they now more suited to a wider range of positions ?
3. Are employers more likely to employ a person whose productivity has been increased through the use of PET ?

For example,

- Would a person with quadriplegia be more employable if they had established proficiency in using speech recognition computer software prior to seeking a job ?
- Would a person with an upper limb amputation be more employable if they had already developed proficiency in using an adapted keyboard and one handed typing techniques ?

What sort of equipment might be involved ?

Equipment could include special keyboards, alternative mouse devices, speech recognition software, personal organisers and memory aids.

What are we inviting you to do?

We are currently seeking participants for the project and invite you to discuss this with any of your current clients who may suitable. A separate participant information and consent form is available for job seekers with a disability.

If you have a client who is interested in participating in the project they will receive:

- **a free assessment regarding their computer related technology needs and**
- **computer related technology and training in its use will be provided for the client, free of charge, for the duration of the project (and possibly beyond).**

The project will consist of the following:

- Interviewing the Vocational Rehabilitation or Disability Employment Service Provider before the technology assessment, after the provision of equipment and training and after the client obtains employment.
- Interviewing the client before and after the technology equipment and training and after the client obtains employment.
- After the client has obtained employment, we are interested in speaking to the employer to see if the technology influenced their decision to employ the person. We appreciate that being in a new job can be a delicate situation so we would only undertake this with the client's and your permission. The client is free to change their mind at any time.

Your decision to participate in the project is entirely voluntary. All information in the project will be completely confidential. No names of individuals or organisations involved in the project will be published. You can also withdraw from the project at any time.

If you are interested in participating in the project please complete the consent form below and contact Gemma McDonald (Occupational Therapist, Ability Technology) or Dr Graeme Smith (Executive Director, Ability Technology) on (02) 9907 9770 or info@ability.org.au.

Many Thanks
Dr Graeme Smith
Executive Director
Ability Technology Limited
21 March 2007



I have read and understood the above information and agree to participate in this project.

Name: _____

Signature: _____ Date: _____

Witness: _____

Signature: _____ Date: _____



RESEARCH PROJECT PRODUCTIVITY ENHANCING TECHNOLOGY FOR PEOPLE WITH A DISABILITY

INFORMATION SHEET FOR PARTICIPANTS

Employers

We are undertaking a research project and invite your participation. The research is supported by the Employment Innovation Fund and funded by the Department of Employment and Workplace Relations.

This is a pilot study which explores the impact of productivity-enhancing-technology (PET), such as special computer equipment, on employment outcomes for people with a disability. The emphasis will be on providing PET *prior* to the person seeking employment rather than after they have secured a position.

The research project will focus on three issues:

1. Does the provision of technology before employment, increase the person's motivation and confidence in their own capacity to be employed ?
2. Does it increase the person's employment options ? E.g. are they now more suited to a wider range of positions ?
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- Would a person with an upper limb amputation be more employable if they had already developed proficiency in using an adapted keyboard and one handed typing techniques ?

What sort of equipment might be involved ?

The equipment will depend on the person's disabilities, and could include special keyboards, alternative mouse devices, speech recognition software, personal organisers and memory aids.

What are we inviting you to do?

_____ has been provided with a free assessment regarding their computer technology needs, as well as equipment for trial and training.

We are interested in speaking to you to see how this special technology influenced your decision to employ the person.

This would involve approximately 20 mins of your time, at your convenience.

Your decision to participate in the project is entirely voluntary. **All information in the project will be completely confidential.** No names of individuals or organisations involved in the project will be published. You can also withdraw from the project at any time. A report will be completed for the Department of Employment and Workplace Relations at the end of the project.

If you are interested in participating in the project please complete the consent form below and contact Gemma McDonald (Occupational Therapist, Ability Technology) or Dr Graeme Smith (Executive Director, Ability Technology) on (02) 9907 9770 or info@ability.org.au.

Many Thanks



Dr Graeme Smith
Executive Director
Ability Technology Limited
27 April 2007

I have read and understood the above information and agree to participate in this project.

Name: _____

Signature: _____ Date: _____