



ICTs and disability: exploring the human dimensions of technological engagement

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Introduction

While the ‘technological superhighway’ stirs the excitement of people in the West, it points directly to many issues facing people with disabilities. It offers a route to transcend problems of mobility, communication, time and space – fundamental barriers to social participation. It offers new solutions to many problems which have previously seemed insurmountable. Thus people with disabilities have the potential to be among the major beneficiaries of the technological revolution. But is this potential being realised?

The problem of under-use or abandonment of technology is well documented in the rehabilitation literature. The research explores the physical and functional factors which may impede usage and the high costs involved in providing technology and services which fail to provide an optimal result. In light of the putative benefits, this is a curious phenomenon. How can disabled people turn their backs on the benefits of the technological revolution? This study will shift the focus of inquiry to less concrete dimensions of engagement: to the self-identity of the user and to the broad dimensions of global capitalism within which the user–technology relationship is negotiated.

In focusing on subjectivity and agency the study directs attention to the meanings and experiences, the values and beliefs of disabled people as they choose to engage with or to abandon technology. Like everyone else, the self-identity of disabled people is informed by social factors: it is revealed in the user’s fears and joys, in their sense of autonomy, competence, independence and in their insecurities and despair. Researching these factors will identify the aspects of technology which please people and those which make them feel uncomfortable. This information holds the key to people’s attitudes and decisions about technology. Use and under-use are lenses through which we can glimpse expressions of the self.

Although the research is concerned with the serious problems of under-use and abandonment, it is self-evident that the participants in this study are technological users, not abandoners. The reader may find this curious. The term ‘computer user’ seems unproblematic. People are likely to be clear about why they chose to engage with technology, what they hoped to gain from using a computer and why they continue to use it. Under-use is a more ambiguous category. Non-users become users, users may become under-users and abandoners may become users at a later time. Both use and abandonment are fluid states of a human–technological relationship. This study will explore the insights of people who, at this point in time, use technology.



Context of study

Although seemingly individual in nature, the issues under investigation in this study are located within the broad dimensions of global capitalism. Information communication technologies (ICTs) are consumer products that are subject to the structures and power vested in global politics and economics. Similarly, the experiences and practices of everyday life are not isolated events; they are always embedded within larger and increasingly complex interconnected systems and structures (Barns 1999, p. 165). Disability is not simply a condition of an individual; it must be seen in the context of the wider society where meaning is given to experience.

While many people with disabilities are successful computer users, most ICTs are not specifically designed for people with disabilities. ICTs are consumer instruments that people with disabilities, like everyone else, may use to a greater or lesser extent to achieve a more or less satisfactory outcome. Despite benign and utilitarian connotations, the benefits of technology are not evenly distributed. Usage of information technology is higher among men, professionals, university graduates and the employed (ABS 1999): the daily escalation of computer use reproduces and strengthens social divisions related to gender, age (Barnett 1998), education and work (Sapey 2000). The technology that holds the key to more egalitarian participation could well become the instrument of further discrimination.

Many people with disabilities experience disrupted education, restricted social interaction and diminished opportunities to participate in the labour market. With its ability to transcend aspects of time, space and physical mobility, information technology promises a significant pathway to increased participation in education, the workplace and social life. But ICTs also offer people the possibility of engaging with new dimensions of experience, of discovering new pathways and creating more meaningful worlds for themselves.

Research in the area

Many studies demonstrate that technology is often under-utilised or abandoned by people with disabilities, sometimes after considerable investment of time and material resources (Phillips & Zhao 1993). The literature covers the physical, functional factors related to technology abandonment (Caudrey & Seeger 1983; Jinks & Sinteff 1994; Lane, Usiak & Moffatt 1996; Phillips & Zhao 1993; Scherer 1994 & 1997; Silverman et al 1999). These writers identify issues such as lack of consumer consultation, inappropriate device selection, poor device performance and changes in the consumer's needs or priorities as reasons for less than optimal technological usage.



The work of Marcia Scherer has made a major contribution to the quest to understand and remedy the vexed issue of technological under-use and abandonment (1991; 1994, pp. 25–7; 1997, pp 129–30; 2000; 2002). Scherer claims that an individual’s perspectives and expectations, their predispositions, about technology are strong indicators of the success or failure of technological engagement. The stories she documents demonstrate that, while technology may offer important solutions to some of the problems experienced by people with disabilities, technology is not a universal panacea (Scherer 2000).

Nonetheless Scherer is committed to identifying the aspects of technology that concern a person in order to match a device more closely with the user of the technology (1991; 1994; 1997; 2002). She has developed a number of comprehensive assessment instruments to assist rehabilitation workers to evaluate an individual’s predispositions to technology (Scherer 1997, 1991). Scherer’s work remains located in individual psychology and in older medically oriented frameworks directed to individual intervention. It fails to take into account broader social contexts where disability, rehabilitation and technology are created, operate and are given meaning.

Hocking, an occupational therapist, shifts the focus to the ‘psycho-social’ domain. In searching for answers to low utilisation rates and the problem of abandonment, she invokes ‘concepts from anthropology and sociology, consumer research, and psychology’ (1999, p. 3). She argues that, as well as matching people with devices, the adoption of the devices ‘must be understood in terms of its impact on identity’ (1999, p. 3). Hocking claims this

will require therapists to be alert to the social and cultural meanings of assistive devices and of disability, because these are the meanings that people with disability must negotiate in the processes of accepting both their disability and the need to use assistive technology, and establishing an identity in their social setting. (Hocking 1999, p. 8)

Importantly, Hocking’s work directs attention to self-identity, but it stops short of situating technologies and technological engagement within the domain of globalising capitalism that underpins technological development and usage.

In focusing on the meanings and experiences of disabled people as they engage with or abandon technology, the focus of this research is on self-identity within a social context: indeed technology, society and identity are inextricably woven together, implicitly referential (Barnett 1998, p. 3). While the social model (Abberley 1987; Barton 1996; Oliver 1996) has been enormously influential in redefining disability as the product of the wider environment and social structures, it attracts criticism because it is seen to ignore experience (Dewsbury et al 2004). Indeed, as Marks suggests, excluding experience from analysis of disability creates a vacuum which is filled by those who adopt an



individualistic and decontextualised perspective (Marks 1999, p. 611). The focus of this research is on the way the user experiences ICTs in the context of global capitalism. Neither the user nor the technology is abstracted from the context in which they interact and in which meaning is given to that experience.

The research project

The current project is part of an ongoing investigation centred on disability and technology. Based at the University of South Australia, the 1998 and 1999 projects investigated the topic *Negotiating Disability, Technology and Risk*. Drawing on contemporary sociocultural theory on the body, risk and technology, the 1998 project examined the technological engagement of people with physical disabilities. The data suggest that technology is considered an important avenue of personal and social communication. But the interviews clearly suggested that, while using technologies may substantially assist people with disabilities, there are also considerable impediments to successful engagement (Lupton and Seymour 2000).

The second stage of the research in 1999 focused specifically on the nature, extent and role of technology as a medium for both interpersonal communication and social participation. Citizenship and interpersonal relationships involve reciprocal responsibilities and obligations. Information technology enables participation, but it may also increase vulnerability to a range of risks and dangers (Seymour 2001a; Lupton and Seymour 2003; Seymour and Lupton 2004). The current project arises directly out of the previous studies and is positioned to extend the parameters of these projects.

Research is never a neutral process. Thus it is important for the primary researcher to declare her personal interest in topic of this paper. The principal researcher has had a progressive joint disease since adolescence. While the computer has enabled her to achieve tasks that seemed impossible and enabled her to keep her job, it has also raised a range of new problems. Engaging in ‘self-research’, the writer has explored her own experiences associated with abandoning a particular computer program (Seymour 2001b, pp. 120–33).

The commitment and collaboration of an industry partner was important to the development of the current study. As the largest provider of augmentative communication and computer technology in Australia, the industry partner sought the most up-to-date research and information related to the use or abandonment of that equipment. The manager of the facility was closely involved in the development of the project, reviewing the research proposals and facilitating access to key stakeholders. Yet despite the anticipated benefits of the collaboration, the researchers were surprised by aspects of the liaison. The small number of participants recruited from within the industry was unexpected and unexplained. Did the low participation rate indicate people’s reluctance to expose themselves to scrutiny or a resistance to institutional imperatives?



Potential participants were identified by staff of the centre. A letter and an information sheet describing the research project were sent to these people inviting participation. The recruitment resulted in only three participants with disabilities. The remaining four participants were recruited by means of ‘snowballing’, essentially a verbal chain of referral (Minichiello et al 1990, p. 198). These participants were not directly associated with the centre. With ages ranging from nine to fifty years old, three of the participants, Alan, Ben and Charles, could be considered children, the remaining four, Donna, Tom, John and Bill, are adults. Three people have cerebral palsy, three have serious visual impairment and one has extensive arthritis. Pseudonyms replace the participants’ real names, and other strategies may be invoked to mask a participant’s identity.

Since issues of identity and the self are central to the project, qualitative research methodology was chosen because it maximises the participant’s voice. Detailed semi-structured, in-depth interviews were employed, and interviews were recorded and subsequently transcribed and analysed. The questions which shaped the interviews will become apparent in the data that follow.

The participants’ voices

The self is not a fixed entity. While the term self-identity is seldom used directly by the participants (or in society more generally), the self is exposed through the stories that they tell. The self is clearly expressed in pleasures that they describe; it is overt in claims of equity, independence, competence and mastery. But it is also strongly displayed in their apprehensions, vulnerabilities, frustrations, fears and despondencies. Whether ‘good’ or ‘bad’, the meaning of these experiences impact upon the identity of the user and influence attitudes towards the computer and the likelihood of satisfactory engagement.

In confronting views which located disability in the ‘faulty’ body of an individual, the social model has redefined disability in terms of a disabling environment (Humphrey 2000, p. 63). This model has been enormously successful in politicising disability and indicating where the responsibilities for remediation lie. But it also highlights dilemmas associated with privileging particular information. While aspects of the social world impact on the experiences of disabled people, they are generally not directly observable. Since only the expert professional can see the ‘world as it really is’ (Dewsbury et al 2004, p. 151) the experiences of disabled people are undervalued. We shall document the obstacles that the participants identify, but this should not imply that other disabling factors do not exist outside their experience (Priestly 1998, p. 85), or indeed outside the researcher’s experience.



While the data document the experiences of individual technological users, the perspective is neither individualistic nor is it abstracted from the broader socioeconomic context. It is clear that technology is important to all of the participants: the fact that they volunteered to participate in a project which explicitly investigates the problems of under-use and abandonment strongly indicates that technology also worries them. The researchers do not wish to suggest that the data represent the experiences of all technology users, but nor do they suggest that the experiences discussed here are unfamiliar to many disabled people.

Early experiences

Although Bill was apprehensive approaching a computer for the first time, he was clear about the potential of technology to help him achieve his career aspirations. Donna was beginning some study. She thought that a computer might be ‘handy to be able to print things out, and proof check things. I didn’t really think I needed one. I just thought it might be handy now and again.’ Ben recalls being ‘a bit afraid. But I was pretty much afraid of anything electronic, really, back then.’ Except in very general terms Tom ‘simply did not know what they were’. Despite her early nonchalance, Donna claims that she ‘just took to it [the computer] straight away’. Tom says that he was not frightened by computers; it was ‘just that this was an unknown area. I was interested, actively interested, in knowing about this unknown thing.’ Ben was slow to overcome his fears. He says ‘I wasn’t really adventurous, and didn’t really try to do very much with it.’ Bill said ‘I don’t want to stuff it up. I probably soon became game and more curious and wanting to explore the system. I became very fascinated.’

Tom’s frustration was that he could not see a way to access computer technology. He says, ‘I saw more and more people using computers, and I had no way into it.’ Tom’s breakthrough came when he won a small grant to travel to another State to visit people with similar disabilities who used a range of different computing applications. He says, ‘That’s where I got my initial ideas about the possibility for a blind or vision-impaired person using computing, although I was still pretty ignorant about what it actually was.’

Associations

Computer facility and competence attract social value and enhance the self-esteem of the user. Charles feels good about himself when he uses a computer. Although he has very little speech he is an enthusiastic non-verbal communicator. He wholeheartedly agrees when his mother says that she is very impressed because he can use a computer and she can not.

Ben’s status is greatly enhanced by the use of a laptop computer in the classroom. For his schoolmates, the computer offers tantalising access to worlds beyond the classroom. Ben says ‘they think of what I could be doing instead of working’. Ben’s computer use



enables his schoolmates to see beyond his disability, to ‘think of me of more on a par with their level, so, like, interested in doing other things apart from work’.

Computers have often been seen as male machines (Wajcman 1991). Despite their past expertise as secretaries, many women still struggle to gain competencies in the field (Barnett 1998, p. 4). Ben and Alan are clear that the computer is a ‘boy’s machine’, though Charles and Donna see the computer as ‘unisex’ in nature. While games may be directed to either boys or girls, Donna claims that ‘generally there’s no gender bias in the programs themselves’.

Donna is clear though that age is an important indicator of how people engage with computers. While early access and the plethora of games encouraged the majority of the participants to link computers with youth, Donna claims that people of different ages use computers differently. She suggests that, while many kids ‘learn the minimum that they have to learn to actually do it, but don’t understand it’, older people are really keen to learn and understand computers. The steady increase in computer usage among older people (Irizarry and Downing 1998) supports Donna’s contention and, invoking the work of Bourdieu, Barnett claims that the acquisition of computer skills is an important means for older women to secure social capital and position in the field (Barnett 1998, p. 1). It seems clear that computer use has served to enhance Donna’s self-identity in terms of social capital though, paradoxically, often to the annoyance of her friends and family.

The participants see the computer as a ‘cool’ instrument, a status which enhances the image of the user in the eyes of others. Not surprisingly, this does not apply to all computers. Donna claims that status is expressed in terms of ‘money, or the very latest and biggest and best and fastest and whatever graphics card or motherboard or chip set or whatever’. But the computer ‘nerd’ is alive and well; indeed both Ben and Donna believe that they are seen as nerds by others. They claim that the designation relates to their high level of usage and commitment. The term ‘coolness’, on the other hand, is associated with the computer as a consumer product. Value is enhanced by wealth and the acquisition of more sophisticated programs and products but, although status is reflected onto the user, it resides in the instrument.

Current use

Charles and Ben use a computer for school work, but also for writing stories and for games. While Alan mostly uses his computer for games, he can also imagine that he might use it for art in the future. Charles, Ben and Alan are now thoroughly committed to computer technology. Ben associates his positive feelings about computers with his sense of equality. He considers that he is seen like everyone else because he can use a computer in the same way that everyone else does. He says ‘I don’t need any special ability or aid to help me use it. I suppose it’s something I’m on a par with everybody else.’



Donna banks and shops online, but she also uses it to keep in touch with people, especially her kids. Ben and Donna have become passionate computer users. Ben says that he uses the computer pretty much constantly, that is, ‘if I’m not stopped by other things, like food and other things’. In a similar vein, Donna says ‘I don’t think it’s possible to use it any more than I already do – I’ve got to sleep sometimes!’ Bill’s relationship with computers is only slightly less passionate. He says ‘I like them. I want to use them, and I want to use them better’.

Bill, Tom and John are thoroughly immersed in the world of computers at work. Bill’s work involves training students to use computers. John says ‘I suppose near to 90% of what I have done has been with a word processor’, but he also uses a database and internet technologies. Computers are Tom’s working life. He says, ‘I depend on them totally for my productivity.’

Tom says that the computer has opened up his life, that for him the computer has been life affirming. He claims that, ‘15 years ago I’d have had the choice of working with basket weaving or maybe if I had gone back and studied something like law, getting into a law practice, as other people who are totally blind did. It just wasn’t something I was prepared to go into.’ He is clear that his sense of himself and his capacities have been ‘affirmed strongly by the use of a computer. It’s a wonderful door, this computing.’

Earlier John abandoned a technological device that was unsuitable for the task. He says that he experienced ‘feelings of inadequacy ... taking it all on myself, internalising it, depression.’ In subsequent university studies, John had to do a field placement in which the observation and interpretation of body language was a critical element. John’s very low vision greatly diminished his chances of passing this subject. A failed grade led to a serious crisis period in his life. In John’s words, ‘In addition to a deal of counselling about self-image and all that kind of stuff, part of the recovery from that was a technological solution which was the implementation of a PC.’ Self-image and self-identity became the catalysts for John to develop a new and productive relationship with technology.

John now approaches new technological programs or computer upgrades ‘in the expectation that it will work and that I will be able to make it work and probably assist other people to make it work because of the balances of experiences that I’ve had’. In working on database programming, John considers that he is ‘producing a result, which as far as I can tell, is commercial quality and in a fairly commercial sort of time frame’. Although hard won, John’s mastery of technological skills and pride in his achievements currently plays a large role in his sense of himself as a competent worker.



Fears

But the precarious nature of technological expertise and device obsolescence is never far away. Although John has mastered the current technological needs of his workplace he lives in fear ‘that might all change if we were to get into various kinds of adaptive technology’. Technological innovation and the imperatives of consumer capitalism will continue to threaten established skills and knowledge. It is unlikely that John will remain satisfied with his self.

Bill claims that his involvement on a bulletin board has given him a greater social awareness and insights into other disability areas and people. Yet despite these positive outcomes, the computer also brings Bill considerable stress. Because he is ‘totally blind’ he must rely on ‘somebody with sight to read what was on the screen to get [me] out of there [trouble]’. This causes him a ‘constant anxiety’ because of the destructive impact of dependence on the self.

Although Ben is delighted with the ‘excellent computer’ he now uses, he is constantly anxious about computer breakdown, replacement and obsolescence, fears shared by many other people in this study. He says that it has a ‘DVD drive, which I don’t really need, but I’m not going to say I don’t need, otherwise it could be taken away. It’s very fast and state of the art.’ He is disinclined to raise any issues related to his computer ‘because if I say, “This computer’s broken”, well, they can say, “We’ll repair it.” If I say something like “I don’t really need this extra thing” or “I need this extra thing”, then they might say “Well we can’t fit this on to this computer. We’ll give you *this* one.”’

Unlike most of the participants Donna claims she has few fears about the computer. While she suggests that an increase in the cost of upgrades or internet access could present problems she claims that ‘I’d be quite happy with what I’ve got now for the rest of my life.’ She continues, ‘probably the only real fear would be that I couldn’t access it if my disease got so bad that I couldn’t use it in any way. At this stage, I don’t think I could make myself use aids like head pointers and stuff like that.’

But despite their fears, the participants are unequivocal that if they had to stop using a computer, the loss would be immense. Ben ‘would lose the ability to keep up with most of the people in my class’. Apart from enabling him to keep up with his education, Ben simply loves to use the computer: it is central to his self-identity. Losing it, he says, ‘would be a very major loss’. Not using it would seriously challenge his sense of self. Though less able to put his feelings into words, Alan claims that he would lose ‘everything’ if he could no longer use the computer. The situation would be no less dire for Tom. He is clear that he would lose ‘my job for one thing, my house, and more broadly speaking my income’. But he would also lose his ‘ability to do a number of things that are taken for granted in our world in terms of reading and writing. Life would be very much harder and more limited in what I could actually do in a normal



community. I would be much more dependent on [others] doing things for me.’ While Donna appears less vulnerable than some of the participants, she claims that ‘I’d be lost’ without the computer; ‘it would be a void that would be very hard to fill’.

Support

The need to ask friends or fellow workers for advice or to execute a task is a costly exercise for many disabled people. The participants are clear about the destructive impact on self-identity incurred by accepting help from others, the ‘unbearable state of perpetual obligation’ (Galvin 2004, p. 137).

The lack of accessible technological help is a recurring problem throughout the participants’ accounts. Tom says, ‘There wasn’t someone that I could actually phone up and say, “How do I do this?”’ On two occasions his employer collaborated with a job support agency to bring an instructor from interstate. Targeted directly at Tom’s self-identified needs, this help greatly relieved his anxieties and enabled him to proceed with his work. Not surprisingly, Tom describes these experiences as ‘magic’.

Although Bill now works in an organisation that provides support to others, as a learner he lived in constant fear that he would need help, but that help would not be available. Since formal help was virtually non-existent, many participants had no recourse but to turn to friends for assistance. As Bill says, ‘after a while, you are imposing on the friendship if you ring up and say, “How do you do this and how do you do that?”’. Assistive technologies are designed to suit a specific user so few other people, if any, are likely to have experience of a particular technical issue. John still lives with constant anxiety that ‘as soon as you engage in the use of any costly assistive technology, you are in the situation where, if something goes wrong, you don’t have a large pool of peer users to call on’. He says, ‘You could be waiting for too long, much too long, to get the thing sorted out.’

For many people the expense of computer technology constantly challenges the self. John tries to make do with simple, readily available computer products because of the cost of acquiring more advanced technologies. Bill says, ‘Well you’ve got the computer, but then you still had to spend another \$600 to get the program to make the thing talk to you plus the synthesiser, which could have been anywhere from \$700/\$800 to \$2000 a unit.’ Thus many disabled people must depend on charitable organisations to fund their computer acquisition and ongoing maintenance. But organisational generosity creates obligations of its own: accessing funds generally involves the recipient in a number of requirements which seriously challenge autonomy and self-reliance (Thornton 1993). John is clear about this. He says, ‘I’ve been the object of charity, and I object to charity. I’ve had that experience in the past and I don’t wish to go back there.’



Time

Time is a scarce commodity for most people with disabilities (Seymour 2002). Despite the putative time-saving attributes, the computer can become a time-devouring technology. While time concerns all of the participants, it is a particular issue for Tom. Yet Tom's struggles exemplify the tensions inherent in the user-technology-worker relationship more generally. The constant imperative to upgrade, retrain, repair and restore is well known to all computer users. These seemingly practical tasks may challenge workplace equilibrium and threaten a worker's self-esteem. The tasks challenge hard-won skills and render previous knowledge obsolete: they disrupt mastery, confidence and self-identity.

Tom describes his early experience of learning to use Braille and Speak (a personal diary) which involved listening to audio cassette tapes. Although he began this training at home, the reality of 'very young children in a very small home unit' soon brought this to an end. Yet Tom was reluctant to do this training at work. He says, 'it was not the sort of thing I felt comfortable to spend a lot of my working time doing'.

Tom's reluctance to spend work time learning to use a computer device that would enhance his performance at work seemed strange. It became clear that Tom's discomfort related to his sense of himself as a worker and his reluctance to be seen as different from his fellow workers. He felt that he had already 'used up quite a bit of time to learn the initial computer program that I began with at that job and [subsequent] skills update work'. Tom lost confidence in his ability to manage time and his work output. 'Because a lot of my self-image is that I don't make claims that I can't meet', Tom asked himself, 'was I on the slippery slope, you know, to being unemployable again?' The prospect of a new version of software provokes great anxiety because he knows that he will need more training to use it. He says that this will be 'another donation from the employer of money. I'm still hesitant to go back and dip in that well again'.

This is the very issue that lies at the heart of employment for people with disabilities. Despite well-established legislation, the sense that your job is contingent on fitting in, on making few demands for extra time or funds, underpins the experience of work for many. Although the time and cost involved in upgrading the technology or training to use a new program may be quite small, the disabled worker is likely to feel that he or she is drawing on more resources than other workers to achieve the same goal. In Tom's words his employer 'donates' time to Tom so that he can learn to use a new technology or program upgrade. In order to spare his employer, Tom waits as long as possible before upgrading his software or undertaking the necessary retraining. This causes ongoing stress.

Tom's need to be seen as a valued worker involves constant negotiation with his self-image and attention to the way he presents himself to others. But such image protection involves considerable costs: Tom's employer must bear the hidden costs of delayed



technical efficiency while Tom must live with the knowledge that, while better technologies are available that would enable him to become more productive, he is unwilling to draw attention to himself or to deal with the disruptions that such changes inevitably bring.

Commodification

Bill's self-identity was greatly enhanced by being able to work as others work. He was especially delighted with his capacity to produce routine office documents and work outcomes. He says, 'my spelling started to improve ... and accuracy in keyboard and typing speed ... these areas improved quite dramatically' as did 'the style of document writing, writing letters and all that sort of stuff'. Formatted letters, faxes, spread sheets, presentational programs and spell checkers have greatly democratised work outputs. This has enabled many disabled people to produce work outcomes that were previously impossible.

Computer-generated documents have enhanced work satisfaction and reduced the drudgery associated with routine office procedures. But Barns warns us that the continuing trajectory of technological change is towards increasing commodification and instrumentalisation of human life (Barns 1999, p 160). He claims that this is partly due to the imperatives of capitalism, but also because of the 'cultural grammar that technological innovation expresses' (Barns 1999, p. 160). While the implications of techno-cultural grammar extend far beyond the example documented above, it serves to illustrate the way we collude with the process of commodification in our lives. Things that delight us may come to entrap us.

While the computer standardises commodities for the consumer marketplace, it offers much more than this. The computer may introduce the user to far less bureaucratic domains. Donna is a voracious user. While on university holiday, for example, she promises herself 'two weeks of solid game playing and internetting and communications'. While Donna explores many computer possibilities, she is less sure that many people with disabilities would see the computer in these terms. She says, 'If they're left alone and don't have other people monitoring their time, and stuff like that'. She is much more optimistic for 'those who ... have more control over their own time and how they do things'. It is clear that Donna's computer skills and knowledge have given her the confidence to explore wider technological experiences that have shaped her self-identity and changed her relationships with others.

But Donna is aware of the hazards that may await the cyber traveller. She can understand how some people could feel anxious because they 'don't know how to use it properly'. It would make you feel bad if 'you've got yourself into situations on the Internet, in chat groups or things and getting abused, or message forums and stuff and you ask them a simple question and then 10,000 people all write to you calling you an idiot or whatever'.



While the computer extends a tantalising invitation, it also introduces the user to risks and dangers.

Isolation

Using a computer may isolate the user from others. Donna claims that the computer was a way ‘that I could get time to myself’. She felt that she could say to people “‘Shut up and leave me alone because I’m busy doing something” and they’d pretty much have to’. Donna says ‘I generally prefer to spend time on my computer than I would to go and talk to other people’. Not surprisingly Donna’s family and friends ‘complain about the amount of time I use [the computer]. They can never get through because I’m always online. Although Bill met his wife on the bulletin board, he claims that he has ‘probably spent too much time on [the computer] and not with my wife or family. It is so easy to lose track of time, generally if you are enjoying it or you’re getting something out of it.’ Ben’s attachment to the computer provokes trouble at home. While his family are pleased that he gets so much enjoyment from the computer, they ‘get a bit frustrated I’m always on the computer and don’t want to really do anything else’.

Donna is confused about the values associated with particular activities. In the past she spent a lot of time doing volunteer work such as crafts, counselling and helping other people. She says her family ‘never told me off for doing simple things like that. But for some reason, people see computers as bad ... whereas it isn’t any different, I could be helping people just as much on the computer as I can physically going somewhere.’

Discussion and conclusions

As the reader can see, engaging with technologies is not an easy ride. Merely staying connected is a daily struggle for some of the participants, and most live with a constant fear of breakdown, obsolescence and dependence on others.

While most of the participants claimed to be apprehensive at first, each has worked hard to achieve skills and competence. Some delight in the status that the computer attracts; they feel enhanced by the association. Without a computer Ben’s slow or illegible writing would isolate him. A laptop enables him to keep up with his schoolwork and, more importantly, to be ‘on a par with everyone else’. But how durable is his sense of competence and self-esteem? The practical outcomes and self-enhancing capacities of the computer have served Ben well as a student, but will these attributes continue to sustain him as a man? Bill, Tom and John’s work is centred on the computer. Each acknowledges the ‘affirming’ qualities of the computer in enabling him to engage in work and enhance his self-identity. Yet each documents the ongoing struggle to retain these attributes in the face of poor technical support, the spectre of computer obsolescence, and the need to accommodate constant retraining within the working day. Managing these recurring problems while simultaneously presenting oneself as a valuable worker is a formidable



task. Asking for help not only incurs a sense of obligation: it further compromises the self.

Currently both Donna and Ben gain enormous pleasure from using the computer. Ben's computer use is interrupted only by 'food and other things' while the fact that she must 'sleep sometimes' is all that keeps Donna away from the computer. Although Donna worries about the possible deterioration of her disease, she is less concerned about the inevitable progression of computer technologies. By claiming that she will 'be quite happy with what I've got now for the rest of my life', Donna displays a lack of understanding of the nature of consumer capitalism in general and technological progress in particular. She appears oblivious to obsolescence inherent in consumer technologies. Parts and programs become incompatible; skills become redundant; nothing remains the same. While the participants may creatively accommodate technological changes, the time will come when their ability to accommodate will no longer suffice. Since Donna would 'prefer to spend time on my computer than I would go and talk to other people', this loss will be immense.

The time-saving capacities and programmable standardised products are enticing, and these features may be particularly beguiling to disabled people. But the struggle for acceptance and identity is not enhanced by commodification and, although time may be saved in some aspects of computer use, it may be lost in others. Yet despite the problems the participants are unequivocal that the computer is critical to their lives: it is a central component of their self-identity, it is essential to their ability to achieve routine tasks, to work, to earn income, and, in the case of participants with visual impairments, to read and write. If the participants were to stop using the computer, they would have no recourse but to turn to others to do practical tasks for them; they would have to draw on public resources as well as family and friends. The impact on the self would be profound.

Williams claims that technologically driven emancipation for people with damaged bodies is (social) science fiction (Williams 1999, p. 249). While the promise of information technology may appear substantial, the inequalities inherent in global politics and economics mitigate against the likelihood of successful technological engagement for people with disabilities. Just as the economic forces of industrialisation created disablement, the economic power of informationalisation has the potential to perpetuate or to create more profound forms of disablement (Sapey 2000, p. 634). ICTs are new technologies, but they have arisen out of old realities. Technology can just as easily worsen inequalities as it can ameliorate them (Servon 2002, p. 1).

It is clear that disabled people must not be seduced by the promise of technological salvation, but nor are they caught up in a destiny over which they have no control. Disabled people do not 'need' to use a computer; it will not necessarily 'be good for them'. There is nothing inherently democratising in ICTs, but there is the potential for



disabled people to use ICTs in ways that bring them satisfaction. Access alone is not enough. Access must be accompanied by ongoing and reliable infrastructure to facilitate, but not circumscribe, engagement. The challenge is to provide support, but not create new technological forms of dependence (Dewsbury et al 2004, p. 155). It is critical to discover the ways people shape and give meaning to their technological experiences, ‘the diverse ways people experience, apply, interpret and represent the technologies that have become part of our lives and how such practices affect subjectivity, self identity and social relations’ (Burns 1999, p. 159).

In exploring the dissonance between technological optimism and the reality of under-use and abandonment we have explored the experiences of a small group of people engaging with technology in their everyday lives. We have documented their experiences, their anxieties and their pleasures in order to understand why, at some stage, they may under-use or even abandon technology. But under-use and abandonment are not categorical; they are fluid stages of the human–technological relationship. They may be seen as expressions of despair, but they may also be seen as expressions of resistance to technological regulation and to the social and economic pressures of capitalism. Disabled people can take control of the forces which construct disablement in the information age (Sapey 2000, p. 634), but they must engage with technology, and fight!

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