Digital Exclusion: Implications for Human Services Practitioners

Issues around digital exclusion may be in their infancy but they are developing fast. The Internet has the potential to offer equity of digital access for enabling individual independence and empowerment in an increasingly digital society. However, for many users of assistive technologies, this remains a problematic scenario. Citizens, who already experience disablement through social failure to recognize difference and diversity of need, may be doubly disabled by exclusive digital policy and practice. There is an urgent need to research the implications of this exclusion for human service educators and practitioners

INTRODUCTION

The Internet is a pervasive digital environment; one which can affect all aspects of daily life. Digitally connected citizens can shop online, organize finances, access education, news, media and socialize with family, friends and colleagues, all via an Internet connection. Opinions are divided on whether these virtual developments constitute a digital revolution or merely represent evolving technical progress (Webster, 2006). What is less contentious is the speed with which digital lifestyle changes have occurred. Rapid media transformations can have immense implications, not least for those ''excluded from the new digital technologies which form the backbone of the modern knowledge economy'' (Department of Culture, Media and Sport, 2008, p. 12). One group at risk of digital exclusion are users of assistive technologies. These alternative technologies are designed to support digital independence for individuals with physical, sensory and cognitive impairments. However, assistive technology has specific requirements and without attention to these, this group is at risk of falling through the digital net, being denied access to opportunities for communication as well as participation in the increasing online provision of government information and services.

This article originates from the authors' research interests into digital equity for disabled people. Many of whom use assistive technology to access the Internet, in particular those with visual impairment who use text-to-speech software to listen to content which sighted people see on their computer monitor. Barriers to textual communication for blind and partially sighted people have a long history with analogue roots. These stretch back to the time of the Gutenberg Press and the mass distribution of printed content in Europe. In comparison to printed text, digital data is inherently flexible which gives it the unique advantage of being customizable to individual preference. As well as increasing the size of content, and changing colors and contrasts, this flexibility includes the conversion from text into speech output. However, achieving this potential diversity of access requires content creators to design digital data in ways which support alternative input and output. Without sufficient knowledge about this additional requirement, access can be denied. This lack of awareness can also cause confusion between the provision of access and the greater issues around the quality of that access. As the value of digital participation is recognized, in particular by governments who see it as a way of cutting costs and improving efficiency, provision of

digital technology can be seen as a ''one-size-fits-all'' solution to issues of digital divides. The broader requirements, ensuring digital content is accessible to a range of alternative technologies, appear to be less widely recognized or valued. This can result in users of assistive technology being denied access to online services which other users of digital environments take for granted.

In an increasingly digital society, the failure to ensure disabled users of assistive technology have equitable digital experiences, places them at a disadvantage in terms of access to online information and services. For those already marginalized and facing barriers to social participation, the result may be further disempowerment. The authors of this article suggest that issues of digital exclusion need to be addressed in the policies and practices of a range of subject disciplines relating to human services. This article will summarize some key issues around exclusion from digital media and how this may relate to existing barrier models of disability. This will be followed by an overview of a selection of digital inclusion strategies in particular those which support links with existing categories of social exclusion. Finally, the article will address the potential implications of digital exclusion for human service educators and practitioners in the 21st century.

DIGITAL DISCRIMINATION

Digital technology offers multiple opportunities for personal communication and access to information. It is increasingly being used by central and local governments for delivering public information and services. In the 21st century, it is likely there will be continual growth in the use of computers, mobile phones, and other digital devices for participation in social, cultural, and economic practices. This digital dependency raises questions around ensuring equity of access. The ''one-size-fits-all'' model of digital devices favored by production economies sits poorly with individual choice; in particular when that choice is influenced by impairment. Historically, sections of society being excluded from dominant means of communication, is not a new phenomenon. In the late 15th century, the production of text in a single fixed print format heralded a move from aural to visual communication. This favored those with hearing impairment and excluded access for those with vision impairment. Eisenstein (1980) has described the Gutenberg printing press as a powerful change agent, making possible not only mass production of the Bible, the key text of the time, but also the distribution of dominant ideology and the means of spreading political subversion and social change. The decentralization of knowledge, and freer circulation of information, had immense political and religious significance in western society, leading indirectly to movements such as the Renaissance and Reformation (Eisenstein, 1980). In the late 20th century similar parallels have been made with the Internet. This has also been called a ''disruptive technology,'' one which has escalated an information revolution (Webster, 2006), and contains within itself the power to effect change (Anderson & Elloumi, 2004). However, the technology in itself cannot be seen as neutral; instead it reflects the social conditions in which it is developed. McLuhan (1962) suggested prevailing modes of technological communication, both analogue and digital, determine the ways in which messages are received and the ratio of this influence increases in proportion with use. An example of this can be seen in relation to communication. In the early days of the Internet, in the late 20th century, the culture and institution of the Post Office held a dominant role in the social structure and electronic mail remained less common than writing letters. Within a relatively short space of time, e-mail had become the communication method of choice favored by both state and industry. One cognitive effect of this on individual behavior was the expectation of increased speed in message exchange. This became measured in minutes or hours rather than days. Mobile digital technologies

have further increased the expectations of connection speeds with an effect of reducing barriers between work and leisure time. As McLuhan predicted, these changes in media can be seen to have impacted on social structures and influenced individual behavior expectations with regard to the ways in which individuals communicate.

It is comparable to what happens when a new note is added to a melody ... when the sense ratios alter in any culture then what had appeared lucid before may suddenly become opaque, and what had been vague or opaque will become translucent. (McLuhan, 1962, p. 41)

Problems arise when massive changes in dominant delivery modes exclude certain groups. Examples of cultural exclusions include early oral ''storytelling'' cultures which disadvantaged those with hearing impairment, and the ''manuscript-to-print'' culture which shifted the barriers of access to people with impaired vision. Digital data has the potential to challenge such historical barriers. The development of assistive technologies which supports alternative formats, have the benefit of increasing opportunities for media participation, in particular for disabled people already facing barriers to communication,. However, as this article will suggest, barriers to access remain and, as links are being made between existing categories of social exclusion and new digital exclusions, opportunities for digital participation for disabled people using assistive technologies appear restricted. Before investigating this further, it will be useful to revisit a existing barriers model relating to disablement.

MODELS OF DISABILITY

The history of disability discrimination has been traced to the industrialization of society and the medicalization of individual difference through physical and cognitive impairment. This led to a pervasive ''Medical Model'' of disability, one which encouraged the view that personal impairment lay at the root of barriers to social and cultural participation (Oliver, 1997). Political activism in the UK in the late 20th century, increased awareness of the social origin of barriers to participation. Barriers, it was suggested, were created by society's failure to recognize and adapt to the diversity of its citizens. A ''Social Model'' of disability was called for; one which supported legislation to provide alternative modes of access, not only to public buildings and transport, but to wider opportunities for participation in all aspects of social and cultural life. The mandate of ''inclusive'' design was adopted whereby ''improvements for some'' were promoted as ''improvements for all.'' Recognizing and removing external barriers to access offered real potential for widening participation to the built environment. A similar policy which focuses on the removal of barriers can now be usefully applied to digital landscapes. In the early 21st century, there are multiple challenges to the provision of equitable digital access. Rather than digital data fulfilling its potential to be inclusive, access is being restricted through a combination of obstacles such as the cost of assistive technology, the need for specialist support, and the exclusive way in which digital data is designed, especially when this fails to take into account the individual nature of assistive software. As a result many disabled people, in particular those with sensory impairment, are being denied equitable digital access through a lack of adaptation to their needs. The authors of this article suggest this constitutes a social model of ''digital'' disability whereby barriers are being put in place by an external environment, one which fails to acknowledge and cater for a sufficiently diverse range of access requirements.

DIGITAL DIVISIONS

The potential of digital data to be fully accessible, regardless of physical, sensory, or cognitive impairment, is limited by assumptions about dominant modes of computer use. In particular, the designers and producers of digital data assume a ''MEE-Model'' of consumption, one where access is assumed via the use of Mouse, Eyes and Ears (Watling, 2010). Recent developments in touch-screen technology are moving away from design for mouse controls but touch screen use still retains assumptions of physical and sensory competency. Assistive technology offers powerful alternatives to dominant delivery modes with the potential to effectively narrow existing digital divides. It offers a diversity of input and output methods, designed to suit individual preference, and encourages and supports nonstandard use. Digital data is equally adaptable. Text can be converted to speech and speech converted to text. Text can be increased in size, its color and contrast customized to suit individual need, and audio and video content offered in alternative formats such as transcripts, captions, or subtitles. This flexibility ensures that where the appropriate technology, training, and support is in place, individuals previously denied access to digital media have the potential for equitable digital experiences which enables independence and empowerment rather than disablement through digital exclusion.

Access barriers for users of assistive technologies have complex dynamics (Steyaert, 2005). Assistive hardware and software are expensive which can make them unaffordable where they could benefit the most. To use assistive technologies effectively requires appropriate training and ongoing support; this can be specialist, expensive and not easily available. However, the most significant barrier to digital access remains the exclusive design of digital data. Even with all the prerequisites for access in place, if the content is provided in a single, fixed format which prevents individual customization or has not been designed with the needs of a range of assistive technologies in mind, then digital access for the users of those technologies will continue to be denied.

Discrimination legislation acknowledges the need to ensure equity of access to information and services (Disability Discrimination Act [DDA], 2005), and international accessibility guidance from the Web Accessibility Initiative (WAI, 1999=2008) contains recommendations and principles which support accessible design. However, application and compliance to statutes and standards remains limited. The findings of the most comprehensive review to date of public websites in the UK showed the majority failed to conform to basic levels of accessibility (Disability Rights Commission [DRC], 2004). Specialist organizations which address digital exclusion issues often do so within specific remits such as TechDis (http://www.techdis.ac.uk) which operates within the UK education sector. Registered charities which focus on access to digital technologies often have limited funds; this can result in access to their policies and practices on digital inclusion being primarily Internet based and access restricted by their digital nature. With regard to the human services, research into the increasing use of digital technologies has addressed potential implications for changes in working practices but offered less experience from the user perspective, although the work underpinning the shift from a medical to a social model of disability predates contemporary moves towards the increasing governance of welfare (Finkelstein, 2001; Oliver, 1997). Revised editions (Finkelstein, 2007; Oliver, 2009) also exclude topics such as computers, the Internet or alternative ways of digital interaction.

Digital divisions for users of assistive technologies remain largely obscured by the scarcity of public knowledge and literature. Academic research on disability has been subject to funding restrictions, and academia's own arcane systems, leading to one UK academic commenting that the more highly

rated work is considered within the research assessment frameworks, then the higher the chances it will be relatively inaccessible to the general public, and at best access to findings will be restricted by location or licence (Barnes, 1996). As a result, the majority of contemporary narratives of digital exclusion remain primarily anecdotal and informed by personal knowledge and experience. This is the case relating to the authors of this article who regularly witness the digital exclusion of service users and it is these experiences which led to the impetus for their ongoing research.

INTERNATIONAL APPROACHES TO BRIDGING DIGITAL DIVIDES

The implications of the digital divide are not limited to whether or not individuals have or do not have access to technology. As the information society unfolds, having access and being able to use the new technology, especially the Internet, also means being an integral part of society and being effective citizens. People with limited access will be outpaced by those who are ahead in the ability to select and process information. (Wong, Fung, Law, Lam, & Lee, 2009, p. 755)

There is increasing international evidence of more governments promoting initiatives to increase adoption of digital services and including strategies to reach the digitally excluded. The Four Little Dragons of East Asia; Hong Kong, Singapore, South Korea, and Taiwan, have become, along with Europe and North America, central players in the highly developed, modern industrial world (Vogel, 1993). With a primary focus on knowledge economies, they have recognized digital divisions among their populations and proposed strategies to bridge these divides. Commonality of exclusion is evident across these four countries; digitally excluded categories include older people, single parents, female homemakers, children in low-income families, new immigrants, and persons with disabilities and=or chronic illnesses (Wong et al., 2009). In South Korea, Broadband IT Korea Vision 2007 has overseen the countrywide provision of broadband network and fibre-optic cable access. This ran alongside an information-literacy program, Dynamic IT Korea, which included the provision and set up of home computers. The Intelligent Nation 2014 in Singapore has specifically targeted digitally excluded people including senior citizens and persons with disabilities; these groups have been offered a combination of free and refurbished computers with a year's free broadband access. The International Development Authority (IDA) offered students from low-income households free computers in exchange for community service. They have also worked with the Society for the Physically Disabled and local training and education institutions to provide specific targeted training. Taiwan's U-Taiwan Program has offered a range of digital support for its socially excluded citizens and those living in geographically remote locations. A partnership with the Graduate School of Social Informatics has seen the formation of local ''community universities'' and the government's Science & Technology Advisory Group has funded Digital Opportunity Centers and Tribal Outreach Computer Centers alongside public access internet connections. In Hong Kong, the Digital 21 Strategy was introduced in 1998 and updated in 2001, 2004, and 2008. Their vision ''is an ultimate information society, under which everyone can create, access, utilize and share information and knowledge, thereby empowering individuals and enterprises to achieve their full potential and improve their quality of life'' (Office of the Government Chief Information Officer [OGCIO], 2007, p. 7). There have been a number of individual projects under the Digital 21 Strategy aimed at narrowing digital divides. The Digital Bridge Project offered computers to secondary school children without access to a home computer. The Digital Solidarity Fund combined both commercial, government, and nongovernment organizations (NGOs) to provide a joined up approach to digital exclusion issues and a computer-recycling initiative was set up to refurbish and redistribute computers to excluded

groups. In 2007, the Labour and Welfare Bureau set up a rehabilitation program, ''Information Communication Technology (ICT) plans for persons with disabilities'' which focused specifically on the need for the research and development of assistive technology. Digital exclusion strategies such as these in East Asia show that in the push to incorporate digital lifestyles there is clear recognition that digital exclusion has a high occurrence in specific, already socially excluded, groups. However, the primary focus to date has remained on the provision of access rather than addressing its quality and accessibility.

UK APPROACHES TO BRIDGING DIGITAL DIVIDES

In the UK, the Delivering Digital Inclusion Action Plan (DCMS, 2008) linked existing social exclusion with the potential for digital exclusion. The plan clearly states that '' ... the dividing lines of social equality are closely aligned to those associated with digital exclusion; age, geography, educational attainment, income, motivation and skills, disability, ethnic minority'' (DCMS, 2008, p. 12). The same report highlights the disadvantages of being digital disconnected: ''There is growing evidence that digital technology can greatly enhance both quality of services and quality of life—particularly for the most disadvantaged citizens and communities'' (DCMS, 2008, p. 8). The Digital Britain Report (DCMS, 2009) and National Plan for Digital Participation (Business, Innovation and Skills, 2010) identified six priority groups similar to those identified in the East Asia strategies; namely older people, low-income households, low-income families, unemployed people, people with no formal qualifications and disabled people (BIS, 2010). A new UK government (elected May 2010) continued to demonstrate plans for driving digital participation and to stress the benefits of being online. The government's Race Online 2012 website (http://raceonline2012.org/) affirms that UK citizens will all be ''better off when everyone's online''. The government's digital manifesto sets out plans for a ''truly networked nation'' where digitally disconnected citizens ''will be even more isolated and disadvantaged as government and industry expand ever faster into digital-only services'' (Central Office of Information [COI], 2012, p. 3). Digital delivery of services is promoted as a means to cut public spending and to ''do more for less'' while offering increased consumer savings, improved access to information and education, and facilitating and reinforcing social networks. Specific cost-cutting targets include welfare and social-care budgets, for example, reducing the cost of residential provision ''The annual cost of residential care for over 65's is £4.8 bn a year so there is a huge prize to be won even if we save a fraction of these costs by using technology to reduce isolation or prevent the need for residential care'' (approximately 1.6 billion US dollars) (COI, 2012, p. 33). However, there is little attention paid to the users of assistive technologies in this vision of a digital welfare state. Digital divides are related to specific social and economic causes rather than broader issues around the accessibility of resources: ''Over a decade of research into the barriers to use of the internet has reached the same findings, namely, that lack of motivation, access and skills are the key reasons why people don't get online'' (COI, 2012, p. 38). Government plans to build a ''networked nation'' where everyone has access to the ''transformative power'' of the Internet contain little indication of how citizens dependent on assistive technology will operate within its vision of a digital future. Instead, new measures to provide incentives for excluded adults who have never been online are specifically aimed at low-income families, unemployed adults and older people; there is no mention of support for users of assistive technologies (BIS, 2010, p. 15). This appears to ignore specific barriers of cost and specialist training and support as well as lack of web accessibility. ''It is vital that the Government responds to the needs of disabled people [failure to do so] ... will, we believe, leave a huge potential gap in provision and mean that measures to make

Digital Britain accessible to all run the risk of excluding disabled people'' (Consumer Expert Group [CEG], 2009, p. 35).

IMPLICATIONS OF DIGITAL EXCLUSION FOR HUMAN SERVICES

Although links between social exclusion and the potential for digital exclusion have been made explicit, government policy continues to support increased use of the Internet for the provision of information and management of welfare. In an increasingly digital landscape, digital exclusion has the potential to be a major barrier to social participation. As human service educators, the authors of this article are concerned about the location of responsibility for supporting those members of society, already marginalized and disempowered, to effectively operate in digital environments. Wong et al. (2009, p. 764) makes a single mention of social workers who '' ... can help organize and mobilize leaders and users among the disadvantaged at the community level.'' In the UK, current policy and practice appears to fail to recognize access barriers such as cost, training, and exclusive digital data, faced by users of assistive technology. For example, the UK Social Work Task Force report into the future of social work recognizes how good quality ICT can support effective professional practice, and that social workers need support in demonstrating their digital confidence and competency. However, it makes no mention of the potential implications of increasing digital practices on the service user or who will address issues arising from digital exclusion (Department for Children, Schools and Families, 2009). Within social work education, the UK Quality Assurance Agency has revised subject benchmarks to require the social work student to demonstrate ability to ''... have a critical understanding of the social impact of ICT, including an awareness of the impact of the ''digital divide'' (Quality Assurance Agency, 2008, p. 14). However, the criteria for demonstration and assessment is left to individual institutions; a practice with potential for regional inconsistencies of knowledge and understanding. There is an apparent lack of awareness of the potential implications of digital exclusion which raises concern. Addressing social inequity and disempowerment is fundamental to human services and it is possible that the significance of digital inequity may not yet be fully realized. This article suggests that users of assistive technology, many of whom already face multiple social barriers, are being needlessly excluded from digital landscapes. The technology supports diversity of access, yet barriers of cost and inadequate support compounded by exclusive digital design means that from Gutenberg to Google, disabled people continue to have their access denied. This article suggests that in the absence of technical reasons for this exclusion, barriers to digital participation must be social in origin. The concern is that to be digitally excluded in the 21st century may lead to new forms of social exclusion in ways which have not yet been fully understood. The concerns highlighted in this article suggest further research is required into the politics of digital discrimination and the potential implications of digital exclusion for human service educators and practitioners.

CONCLUSION

A range of digital communication services, and digital gateways to information and services, are increasingly influencing modes of social participation. Of particular concern to human service practitioners should be the move towards online delivery of information and provision of welfare lest this excludes those users of assistive technologies who may already be experiencing multiple barriers to participation. The value base of professional practice in human services encompasses a ''global concern for the achievement of greater equality in the allocation of social goods between

nations, communities and individuals'' (Banks, 2008, p. 34). Connections between social exclusion and the potential for digital exclusion suggest the human services, in particular social work with its fundamental value of empowerment, may increasingly be under pressure to address digital barriers. However, supporting service users in gaining access to appropriate technologies is only the first step. Digital participation can never be assumed. Greater awareness is called for with regard to subsequent barriers which derive from the failure of digital data to be designed in ways which support diversity of access. Ensuring this requires a multidisciplinary approach which lies beyond the scope of this article. However, awareness of the relevant issues can help educators and practitioners to challenge any inadvertent replication of exclusive practice. As reliance on the Internet continues to be the rule rather than the exception, the failure to support those at risk of digital exclusion could risk caring professions being seen as reinforcing rather than alleviating social injustice.

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