Vicious cycles: digital technologies and determinants of health in Australia

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SUMMARY

Digital technologies are increasingly important as ways to gain access to most of the important social determinants of health including employment, housing, education and social networks. However, little is known about the impact of the new technologies on opportunities for health and well-being. This paper reports on a focus group study of the impact of these technologies on people from low socio-economic backgrounds. We use Bourdieu’s theories of social inequities and the ways in which social, cultural and economic capitals interact to reinforce and reproduce inequities to examine the ways in which digital technologies are contributing to these processes. Six focus group discussions with 55 people were held to examine their access to and views about using digital technologies. These data are analysed in light of Bourdieu’s theory to determine how people’s existing capitals shape their access to and use of digital technologies and what the implications of exclusion from the technologies are likely to be for the social determinants of health. The paper concludes that some people are being caught in a vicious cycle whereby lack of digital access or the inability to make beneficial use reinforces and amplifies existing disadvantage including low levels of reading and writing literacy. The paper concludes with a consideration of actions health promoters could take to interrupt this cycle and so contribute to reducing health inequities.

Key words: digital exclusion; ICTs; health equity; social determinants of health

INTRODUCTION

The past two decades have witnessed a rapid and relentless increase in the use of digital technologies. These innovations in digital information and communication technologies (digital ICTs) have the potential to have a positive impact on health and to be democratic in the way that they bring innovation and opportunities to people. Digital technologies are becoming increasingly important as ways to gain access to most of the important social determinants of health including employment, housing, education, direct health information and access, and social networks. Yet, little is known about the ways in which these technologies will impact on health equity. This paper will explore how digital technologies are an increasingly important determinant of health and argue that health promoters need to develop an understanding of how they interact with and reinforce other social determinants of health and how they have the potential to increase existing health inequities.

The digital revolution and its differential impact

The development and diffusion of digital ICTs are having a profound effect on modern life and are viewed as having the potential to either
alleviate or exacerbate existing inequalities (Warschauer, 2003; Warschauer and Matuchniak, 2010). Being able to use digital information and communication networks (especially the Internet and mobile phones) is increasingly important for people to gain full citizen participation in economic, social, educational, political and cultural life (Lee et al., 2002; Kvasny et al., 2006; Vinson, 2007). This is particularly so as the private sector and government are relying more and more on ICT-mediated provision of services, support and information. Health services around the world are also increasing their use of digital communication, intending that for service users this will improve access, convenience, timeliness and control, and for providers will save costs and resources (Griffiths et al., 2006). This revolution in communication technology has happened rapidly over the past two decades and has profound implications for our lives. In terms of health, these changes have the potential to be a force for more equitable population health, but only if the implementation and impacts of using new technologies are assessed for likely impacts on health status. The impact of technologies on equity have been noted, with Parsons and Hick (Parsons and Hick, 2008) talking of ‘the digital divide’, discussing the impact of this divide and the need to move to notions of digital inclusion. Furthermore, Helsper et al. (Helsper et al., 2009) have shown that, across most of Europe and the major English-speaking countries, the uptake of digital technologies (as indicated by percentage of Broadband subscribers) mirrors existing social inequalities as indicated by the Gini Coefficient. Van Dijk (Van Dijk, 2005) has also argued that the distance between the ‘information elite’ and the ‘unconnected or excluded’ is widening, leading to rising levels of social and communication inequality.

Nevertheless, McLaren and Zappala (McLaren and Zappala, 2002) noted that little is known about the factors associated with access and use of ICT among different socioeconomic groups in Australia. Concern has been expressed that as more-advantaged groups continue to have better digital access, the less-advantaged will have restricted access to a range of opportunities made possible by ICTs (Lee et al., 2002; Boese and Scutella, 2006; Vinson, 2007) and, that this would eventually lead to a steeper social and health gradient. Indeed, even when disadvantaged people do use the Internet, they are often less likely to engage with activities from which they would benefit most, such as for economic activities and services (Helsper, 2008).

Health literacy and basic literacy in the digital era

It is argued that health-care communication in an increasingly digital world demands more health literacy from consumers, particularly when fundamental literacy (reading and writing) also continues to be a critical yet often ignored social determinant of health inequities in both developed and developing countries (Zarcadoolas and Pleasant, 2009). Health literacy constitutes the knowledge and skills which enable a person to navigate ‘the health continuum’: as a patient in the healthcare setting, as a person at risk of disease in the disease prevention system and as a citizen in relation to health promotion efforts (Sorensen et al., 2012). US national data clearly links health literacy to fundamental literacy which is a key factor in health access for anyone with an education below high school level (Kutner, 2006). In Australia, 7 million people (46%) aged 15–74 have scores at the lowest 2 levels of proficiency in general reading (out of 5 levels), while for health literacy approximately 9 million Australians (60%) attained scores at only level 1 or 2, and only 900 000 (6%) were at Level 4/5 (ABS, 2008a). A Dutch study tested a randomly selected group of the Dutch population (van Deursen and van Dijk, 2011) in terms of their ability to use the Internet for eHealth purposes, according to four operational skills from ‘basic’ to ‘strategic (using the information for personal benefits)’. The study found that educational attainment was the best predictor of being able to use the Internet strategically to gain benefits. This study suggests that it is important to know not just whether people have access to the Internet but also what use they make of it and the extent to which they benefit from it.

Exclusionary processes

Much of the research has been concerned with technical access issues and has not explored social, cultural and motivational issues (Notley and Foth, 2008). Some people are even becoming ‘digital drop-outs’ or persistent ex-users of ICTs (Selwyn et al., 2005; Raban, 2007) suggesting that exclusionary processes are at work and that along with other forms of exclusion, digital
exclusion is becoming another way in which inequities are perpetuated. There have also been calls to research the relevance, appropriateness and awareness of certain ICTs and their potential benefits, differing levels of adoption and the role of social networks in relation to ICT access and use [Kvasny and Keil, 2006; Australian Communications and Media Authority (ACMA), 2007; Gilmour, 2007; Gilbert et al., 2008]. Castells' (Castells, 2011) notion of power in the Global Network Society sees actors and organizations who are inside network structures holding power over those outside these structures, and setting up rules which exclude them. The increasing demands being placed on consumers to communicate through digital channels could be interpreted as one such exclusionary rule established by health organizations.

**Digital access and use in Australia**

Home Internet access is associated with more complex activities and freedom of use than community access such that it is now seen by researchers as an indicator of high-quality access and important for increasing digital engagement (Helsper, 2008). Australian data for 2010–2011 shows that 79% of Australian households overall have home Internet (ABS, 2011). Previously we reviewed the evidence on the distribution of Internet access in Australia and concluded that the distribution suggests the existence of a digital gradient (as opposed to a digital divide in which there is a group of ‘haves’ and ‘have-nots’) (Newman et al., 2010). Further Australian data also indicate that the distribution of digital technology access is not evenly spread, and that socio-economic characteristics of households in particular continue to influence the rate of Internet connectivity. Households still less likely to be connected are those with lower household incomes, those without children under 15 years, those outside of major metropolitan areas and those on low incomes (ABS, 2008b, 2011). Among Australians aged 15+, 22% of women and 19% of men did not use the Internet anywhere in the previous 12 months (ABS, 2011). The income gradient in digital access has continued and by 2010–2011 while over 90% of the top quintile had access, only a little over 50% of the lowest quintile did (see Figure 1); and even among those with access the more disadvantaged groups report less frequent use (ABS, 2011).

Other differences include 86% of remote indigenous Australians being without home Internet compared with only 37% of the remote non-indigenous population (McCallum and Papandrea, 2009).

Data also show that even when people have home Internet, there are still barriers to actually using it. For older Australians (aged 60+), while 49% of women have home Internet, only 37% used it in the last 12 months; for men these figures are 58% and 47%, respectively (ABS, 2011). Comparative data for Australians with a disability show 61% of women with home Internet but only 52% using it; and 64% of men with home Internet but only 55% using it (ABS, 2011). All these data, linked to socio-economic inequalities, which underpin health, suggest that digital technologies have the potential to reinforce existing health inequities.

**Bourdieu and digital ICTs: forms of capital and the digital world as a field**

The existence of a range of social and economic inequities underpins health inequities. Bourdieu (Bourdieu, 1977) has explained the existence of inequities through reference to the ways in which class reproduces itself through societal mechanisms that either enhance or restrict access to social, economic, and cultural capital. Competition for these forms of capital and the interactions between them shape the distribution of power in a society. In this paper we use Bourdieu’s (Bourdieu, 1984) concepts of different capitals to examine the ways in which they affect access and use of digital ICTs and how restricted access in turn limits the
potential for capital accumulation. Bourdieu also described the concept of fields as the social and institutional arenas where individuals compete for the distribution of different kinds of capital (Bourdieu, 1984). Fields reflect power hierarchies (Navarro, 2006) such that individuals experience power differently depending on the particular field. We conceptualize the digital world as one societal field in which the struggle for resources is conducted and on which power is unevenly distributed.

This paper uses Bourdieu’s ideas to explore the ways in which digital ICTs operate to both reflect and exacerbate inequities in access to the social determinants of health. It considers the factors that affect access to digital ICTs and the results of experiencing total or partial digital exclusion. The paper concludes with a discussion of the implications of our findings for health promotion practice.

METHODS

Focus groups

Six focus group discussions were conducted between August and November 2008 in five outer-suburban and one inner-city area of Adelaide; the capital city of South Australia and home to 73% of the state’s 1.6 million population (ABS, 2008c). Focus groups allow for an initial grounded exploration of issues through interactive discussion and are particularly valuable for researching with people from lower socio-economic backgrounds or ‘vulnerable’ groups because they give ‘voice’ to the research participants and allow them to define what is relevant and important to understand their experiences (Liampittong and Ezzy, 2005; Liampittong, 2007).

People were recruited to the focus groups with assistance from individuals working in local communities and service organizations known to the researchers. The settings and providers were located in areas identified by Glover et al. (Glover et al., 2006) and ABS (ABS, 2002) as lower socio-economic status according to education level, income and occupation group. Recruitment was focused in the 25–55 year age range—the main family formation and working age group—since there is already some Australian focus on researching digital technologies with disadvantaged youth (Blanchard et al., 2007) and with older culturally diverse communities (Goodall et al., 2010). The six focus groups, with a total of 55 participants, were the following:

- 1 women-specific community support group (8 participants; ‘Women’s group’);
- 1 men-specific community support group (7 participants; ‘Men’s group’);
- 1 work/unemployment support group (10 participants; ‘Work group’);
- 1 group living in community rental housing provided at an affordable price to people on low incomes and/or at risk of homelessness (5 participants; ‘Housing group’);
- 1 Aboriginal group (15 participants; ‘Aboriginal group’);
- 1 African-born recent-refugee group (10 participants; ‘Refugee group’).

For the refugee group who were not proficient in English, the researchers’ questions and participants’ responses in English were interpreted into the group’s native language by an accredited and experienced interpreter who was known and trusted by the group, and participants’ native language responses were interpreted back into English. Focus group discussions were tape recorded verbatim and transcriptions were analysed for content and themes (for the refugee group only the English part of the discussion was transcribed). Each participant was thanked for their participation with a lunch and an AU$30 shopping voucher. The research project was approved by the Social and Behavioural Research Ethics Committee at Flinders University.

The focus group question guide was developed from a literature review, questions from previous digital surveys (Lee et al., 2002; ACMA, 2007; Blanchard et al., 2007) and discussion with the Research Reference Group. Questions included the following: What types of ICTs are you using and why/why not (including whether accessing government/non-government services)? How did you learn to use those ICTs? What barriers do you see to using ICTs and how could these be overcome? Are there downsides to using ICTs? Do your social networks mediate access/use, or motivate you to use ICTs? and What is the impact of using/not using ICTs on opportunities for employment, housing, education, convenience and creating/maintaining social networks? However, as is common with in-depth interviewing, as other
issues arose spontaneously they were probed and followed up by L.N. and K.P. One such issue was the way in which the existing social, cultural and economic capital which individuals had access to shaped the degree to which they were able to access and use ICTs. Transcripts were analysed according to established methods to provide a descriptive account (Ritchie and Spencer, 1993; Green et al., 2007). L.N. and K.B. conducted all groups, which allowed continual data immersion; they then used a constant comparative, iterative method to analyse two transcripts, individually allocated text to a priori and emergent codes, and compared and discussed interpretations to derive a coding framework. This framework was applied to the other transcripts and new emergent codes were discussed and added. As analysis proceeded with subsequent groups, new questions were incorporated into the schedule to further explore emerging ideas. The final framework consisted of dominant categories.

In this paper we examine the data relating to digital exclusion and the impact on the social determinants of health, including the ways that different capitals impact on access and use of digital ICTs, and the ways in which access to and use of digital ICTs shapes people’s opportunities in other areas of their life. The analysis conducted for this paper involved F.B. reviewing the existing codes and interpreting them in light of Bourdieu’s theories. Thus, we drew out of the transcripts the themes that related to the ways in which our respondents’ existing capitals shaped their ability to access and use ICT and then analysed the ways in which the digital world has become a social field in which existing inequities are played out and reproduced.

**FINDINGS**

Our findings show that people from low socio-economic groups are restricted in the ways that they can access and use digital ICTs and that this limited access and use can, in turn, affect their access to a range of social determinants of health.

** Restriction on access and use**

Table 1 summarizes the factors that we found limited people’s digital ICT access and use. This analysis shows that lower levels of social, economic and cultural capital all work to make access and use of digital technologies more difficult. Thus, people cannot always afford to purchase the new technologies (economic capital), report that their limited educational opportunities (cultural capital) means that using the technologies can be difficult and that they do not necessarily have the social connections (social capital) to support their use.

These data show how limited income restricts people’s access to digital ICTs, as expenditure is seen as a luxury or ‘extravagance’, and is one item amongst a range of facilities that people on lower incomes are forced to choose between. Similarly, the lifetime accumulation of educational opportunities (or lack thereof), and related levels of literacy and confidence in learning new skills, translates into the ability to access, use and benefit from digital ICTs. The quotations in Table 1 in particular highlight the role of fundamental literacy, especially reading skills that are likely to result from lack of educational opportunities. This restricts even native English speakers from using the Internet, because much of it is in written form and text-dense. These issues are then compounded in a mainstream English culture for those whose first language is not English. Many people also gain their skills in using new technologies through their employment, such that those who are not in the workforce, as well as often having lower incomes and poorer educational history, are also lacking on-the-job ICT training that many others gain as a side benefit of their employment. Thus, a life in which access to cultural and economic capital has been limited means that access and use of digital ICTs is more difficult in the present. Exclusion from digital ICTs has therefore become one of the many ways in which people who are already disadvantaged potentially suffer a further level of disadvantage.

**Overcoming barriers to digital ICT access and use**

Nevertheless, we found that access to and use of digital ICTs could be aided by people having social connections as these examples suggest:

I got into the course I’m doing at the moment… because someone from here researched on the web for me, she printed out several web pages, so
Table 1: Social determinants of access to digital technologies

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<th>Existing determinant</th>
<th>Focus group evidence</th>
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| Unable to afford access              | The Internet is an extravagance for us … It’s like a luxury (Employment group)  
My daughter wants a laptop but I can’t afford one (Women’s group)  
I’m having to choose between a car and several things at the moment … and I need a car, I can’t use public transport … for my back. I have a spinal injury … and I think it’ll come to that, where the computer will just have to go (Men’s group)  
We could only get Broadband if we had a fixed line, which was [phone company] telling us to get a fixed line basically, [which means we’d have to spend] more money (Employment group)  
We don’t make many calls out but we have our landline so people can call us … otherwise they can’t afford to talk for ten minutes on a mobile call (Women’s group) |
| Limited educational opportunity      | I have a problem with the reading and writing side of it. OK I admit that no worries, and it doesn’t mean that I don’t know what I’m doing. But I find that with the Internet if you have to go on the Internet and you can’t damn well read the words that they want you to put on, how are you supposed to access the Internet in the first place? (Employment group)  
I didn’t have a very good education and I can really only read basic fictional books (Housing group)  
Well mobile phones they’re okay, I suppose they are a necessity of today … they frustrate me a little bit … and computers – I’m illiterate for a starter (Employment group)  
Everything is in English – Internet, even mobile phones, everything is in English and that’s a big barrier … A big barrier remains the language because you can have the website, you search for it, and you are given a lot of information and everything’s in English (Refugee group)  
I haven’t asked people that live here to teach me or just show me the Internet because I feel like I’m taking up their time or they might not have the patience, and I’m not the quickest person off the mark you know (Housing group) |
| Employment status                    | I have become aware of how the Internet can be of use through working with my previous employer (Men’s group)  
Cost is certainly a factor – I mean, I don’t have broadband at home … I have dial up that I pay for by the hour. I’ve got broadband at work so I do most of my stuff [at work] after hours (Aboriginal group)  
Well I actually got a traineeship and as part of that I got sent to TAFE one day a week to get our certificates … [and] they taught us all the computer stuff … the basics. And through my work they put me through more training (Aboriginal group) |
| Housing stability                    | I’m really looking forward to having Internet at my house but I too have a peel [problem] with Telstra and that came about through homelessness as well, because many years ago I had the phone in my name and everyone moved out and didn’t pay me … I’m paying it off very slowly (Housing group) |
| Limited access to social networks    | My daughters are always after me to get a mobile but they’re not living with me so there’s nobody to teach me (Aboriginal group)  
I taught my nana and aunties everything they need to know about their mobiles … it took them a few months though (Aboriginal group) |

having access to the Internet helped me get into my current course (Housing group).

My friend has taught me to use the basic features … the [instruction] book’s pretty thick and to read it, I can’t comprehend it (Housing group).

When I go down to my sister’s place I use her computer, like she does all my banking online and we do everything from bill paying to basically just doing everything. [Otherwise I] have to drive to six or seven different places paying cash for it (Employment group).

I know enough people I could ring up and say “Hey on the weekend can I come over and can you turn your computer on and do something for me?” (Women’s group).

Each of these examples demonstrates that social capital can contribute to reducing digital exclusion but that people’s exclusion is intensified if they do not have networks which include people with the skills and time to pass on digital skills. Others spoke of the way in which having employment can provide opportunities to learn skills for digital ICT use. This illustrates
the ways in which the possession of one form of capital (a job) can then lead to the acquisition of digital capital (which we define as the means to access and make beneficial use of digital technologies). This transference between different types of capital was frequently described by participants, demonstrating how exclusionary processes may be at work in the digital field.

Digital capital shapes access to other social determinants of health

We further found that once people are excluded from digital ICT access and use, then this has implications for opportunities in other social determinants of health. Table 2 provides examples of the accounts focus group participants gave of ways in which limited digital access and use impacted on their opportunities in accessing other social determinants of health. They reported that modern education requires digital ICT access, and that limited access means you are disadvantaged compared with other students. Looking for employment is also made more difficult and not having the skills to use technologies also inhibits employment opportunities. Digital exclusion is also seen as having social impacts, in that our focus group participants noted that access to digital ICTs is increasingly important in making and maintaining social contacts. Many of our participants also reported that inadequate access to digital ICTs was, in and of itself, socially excluding, and recounted the ways in which this happened to them.

DISCUSSION: A MODEL OF THE HEALTH EFFECTS OF INADEQUATE DIGITAL ACCESS AND USE

A digital vicious cycle

Our findings have painted a picture of the ways in which people who are already disadvantaged in terms of their access to economic, social and cultural capital are further excluded from access to social determinants of health and well-being in the digital field because they have insufficient existing capitals to help them accrue digital capital, hence they are in danger of being caught in a vicious cycle of digital exclusion (see Figure 2).

Thus to take the example of education, if people have had inadequate educational opportunities in their life then this may operate as a barrier to them accessing and feeling confident using digital technologies, and also means that they are, as a consequent of this lack of access, more likely to be excluded from educational opportunities as these increasing rely on digital capital. The educational opportunities to acquire fundamental literacy also shape health literacy, which therefore in turn affects people’s ability to improve their health status and health outcomes. This disadvantage is compounded because digital literacy is increasingly a prerequisite for health service delivery and access to health information. As one participant commented ‘If you can’t damn well read, how are you meant to access the Internet in the first place?’ Importantly, Helsper and Galacz (Helsper and Galacz, 2009) point out that if it is ‘just access’ that is the problem then this will disappear when the current generation of elderly non-users passes away and the ‘tech savvy’ digital generation grows up. In other words, the digital exclusion shown in Figures 1 and 2 will simply disappear over time. However, in Bourdieu’s (Bourdieu’s, 1977, 1986) terms, the low levels of capital which may exist, for example, among youth from disadvantaged backgrounds means that when it comes to socio-economically disadvantaged youth playing on the field of digital ICTs, as they grow up they will still experience disadvantage, low literacy levels, and lack the power and resources to benefit from this field due to the process of digital exclusion which we show in Figure 2, and particularly as fundamental literacy, health literacy and digital literacy overlap requiring increasingly complex or new skills and cognition for sophisticated use, and constant financial expenditure to ‘keep up’. In contrast to Tondeur et al. (Tondeur et al., 2011) who see digital capital as just a new aspect of cultural capital, we found that social, cultural and economic capital are all transferable to and impact upon digital capital, that is, in gaining access to and using digital ICTs for their benefit. Those lacking access to these capitals are also either absolutely or relatively excluded from the technologies and benefits they bestow.

Implications for health promotion practice and policy

Working for health equity is an important part of good health promotion practice. Consequently, health promoters need to consider the ways in
Table 2: Impact of digital exclusion on access to social determinants of health

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<thead>
<tr>
<th>Impact of exclusion</th>
<th>Focus group evidence</th>
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<tbody>
<tr>
<td>Essential for education</td>
<td>I’m going to have to think of some sort of internet connection regardless of how I do it because of course I’m studying next year (Housing group)</td>
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<td>The last time I went back to Uni I was working two jobs and doing full-time Uni, I didn’t have computer access at home and that made it slightly difficult (Housing group)</td>
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<td>You need a computer for schooling … and if you haven’t got it you are disadvantaged (Employment group)</td>
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<td></td>
<td>You’re socially disadvantaged if you didn’t have a computer because the other students would be way ahead of you and you’d be left behind because they expect you to have one (Employment group)</td>
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<td></td>
<td>When I was at school I was always struggling to get a computer at the library cos everyone else wanted them too (Women’s group)</td>
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<td></td>
<td>I think with the computer it would … exercise my brain – it’s like any other muscle in your body that needs exercising and my brain doesn’t get all that much. (Housing group)</td>
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<td>Access to employment</td>
<td>These days I think that you could be [missing out by not being online], cos with some things you’ll get in so much quicker by using your computer. Like if you’re lodging an application for something or sending in your resume, of course they’re gonna get them way quicker than waiting for you to rock up or hand it in or post it in. (Women’s group)</td>
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<td></td>
<td>I wouldn’t know a website to look at to find a job or to find anything (Men’s group)</td>
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<td></td>
<td>We used to read the paper and look for a job, now you’ve got to go in and punch on a damn computer and try and find your jobs in there … It’s even going in looking to apply for a job, and most of them have to say ‘No sorry we do it all from online now and you’ve got to do it from online not come into the office’ (Employment group) .</td>
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<td></td>
<td>If you don’t have computer skills you might as well not apply for a job because you can’t go into the places now because they’re all online (Employment group)</td>
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<td>Access to housing</td>
<td>I think it’s more easy and convenient more than anything because if you are looking for houses to rent it’s got websites where you can look at particular suburbs, and you can look at photos of the rooms and the backyard … [to find] what you want (Aboriginal group)</td>
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<td>Access to social networks</td>
<td>I’m the oldest in the group and I still haven’t figured it [computer] out! I find it difficult to use … but yeah I don’t do, like my family will say ‘Well I sent you an email, haven’t you opened it?’ and it’s like nah! (Women’s group)</td>
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<td>Both the [mobile] phone and the Internet have given me social opportunities I wouldn’t have had otherwise (Housing group)</td>
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<td>Like if I didn’t have my mobile phone people wouldn’t be able to get in contact with me and then I’d miss out on a lot (Housing group)</td>
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<td>Access to information</td>
<td>To do with the Internet and stuff like that, now it’s starting to really bug me and annoy me sometimes because all the programmes and some of the stuff I’m interested in looking at and wanting to know about, they’re always putting a damn website address, no phone number contact, and you can’t get in touch with them. You’ve gotta go on the Internet (Men’s group)</td>
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<td></td>
<td>Everywhere I ring, the first question they ask is ‘Do you have the Internet?’. No! Because they’ll just give you a website and be very quick and wanna get you off the phone (Women’s group)</td>
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<td>Lack of access can be</td>
<td>You’re having a conversation and … they know computers and you don’t. The next minute they’re talking about ‘Oh mine’s got mega something or other’ and ‘Oh I’ve got blue tooth’ and I’m thinking, what? All this technology is way over my head cos I don’t know it (Employment group)</td>
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<td>experienced as exclusion</td>
<td>Technology is doing the same thing, it’s trying to go too quick … it’s like a wind in the air, it’s ‘phewww’, it’s going that quick. And there’s a lot of people that’s getting left behind because they don’t understand it … and a lot of people are scared to get involved because it’s too quick (Men’s group)</td>
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<td>I’ve noticed with some letters … they don’t actually put their phone numbers on there any more, they’ve only got websites … I’ve felt pressured to have to use it … because that’s all the choice they’ve given me (Women’s group)</td>
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<td>I feel like I’ll just get left behind and I don’t want to (Housing group)</td>
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<td></td>
<td>Well those who can’t afford it get left behind, don’t they? (Men’s group)</td>
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<td>For those having programmes like Skype, they would talk to their relatives, friends being in different countries, like different continents, people they’ve seen a long time ago (Refugee group)</td>
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<td></td>
<td>In a way they’re saying ‘Do you have a computer at home?’ and if you say ‘No’ they sort of look at you … (like) you’re not quite up to scratch (Employment group)</td>
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which the digital ICT vicious cycle we have described can be interrupted so that access to the digital field is more inclusive. Considering what can be done about each form of capital is a helpful starting point. In terms of changing economic capital, reducing the cost of digital hardware and broadband access for people on low incomes is one possibility. Free access to the Internet can also be provided in public facilities such as libraries, community health centres or primary health-care facilities, although our previous research showed that people find this access less satisfactory than 24 h home access (Newman et al., 2010), and <10% of Australians use the Internet in public libraries or government shopfronts (ABS, 2011). Such low levels of use might be increased if assistance were available to support users as they needed it, which would at the same time serve as a way to up-skill people on an issue of interest to them. Such strategies are being used as part of the Australian implementation of an improved national broadband network.

Increasing cultural capital requires investment in education (including adult education) and recognition that this is particularly important for people on low incomes, those who do not speak English and those who suffer other adverse conditions in their life such as inadequate accommodation or unemployment. Helsper (Helsper, 2011) finds that in the UK gaps based on education and employment persist regardless of age or other characteristics, such that a digital underclass is emerging who will miss out as government services become ‘digital by default’. People may be more encouraged to learn to use ICTs, if the opportunity to increase specific skills (e.g. wanting to use bus timetables on their mobile phone, or being invited to use online diabetes self-management) were offered in entry level workshops directly relevant to these specific skills. A community-wide programme to encourage adult peer-learning about digital technologies, in community locations which people from low socio-economic backgrounds are familiar with and feel comfortable with, could assist with increasing people’s competence and confidence in using digital ICTs. Some countries already have national programmes to support disadvantaged individuals to do this, such as the network of 3800 UK Online Centres focused in disadvantaged neighbourhoods (UK Online Centres, 2010) and Canada’s Community Access Program (Industry Canada 2011; http://www.ic.gc.ca/eic/site/cap-pac.nsf/eng/home, last accessed 19 December 2011). Such approaches would also work to increase people’s access to social capital and the benefits it can bring.

Health promoters themselves also need to ensure that they do not assume all people have equal access to and ability to use digital ICTs when implementing online forms of communication, or in the provision of online health information or self-management. In particular, health promoters need to understand the barriers posed by the interaction of digital literacy with health literacy and fundamental literacy, and to consider this when deciding whether to direct patients to Internet-based information or self-management. This may mean continuing with appropriate resources in traditional (non-digital forms) and in languages other than English, and working with clients to ascertain the communication methods for which they do have the necessary capitals. It also means that services should offer more than digital options, as only providing a website, without phone or face-to-face options in itself may alienate some potential clients. Our research supports other recommendations (Zarcadoolas and Pleasant, 2009) that, regardless of whether health communication is in digital or traditional formats, consideration must be given to whether this matches the user’s skills, abilities and level of knowledge. In light of the various literacy barriers related to digital communication, our
research suggests it is also essential to consider the continuing role of verbal communication (directly by health professionals, or via radio and television). This is particularly essential for those groups who prefer non-written formats (Wilkin and Ball-Rockeatch, 2011). Providing offline phone counseling alongside online counseling is one example of a diversified strategy and could be effective with less advantaged groups if the health service pays for the cost of the phone call. However, it can be more expensive to call counseling numbers from a mobile phone than a landline phone, and disadvantaged groups are significantly overrepresented in the mobile-only population (Holborn et al., 2012). Written communication could be mediated by a health professional who might, for example, sit with a client to find and interpret relevant Internet information, rather than directing a patient to do this alone when they do not have the necessary capitals for successful access. Since our respondents cited family and friends as playing a key role in Internet access, the provision of computer and Internet hardware in community or health settings may be more useful to consumers if it were supported by an Internet mediator or ‘health-promoting buddy’ who could assist with digital and fundamental literacy issues for Internet access, as well as providing health literacy support. A US hospital serving vulnerable populations uses an image-based touchscreen with audio options (and librarian assistance if needed) which patients can use to learn basic health information while waiting for appointments, all of which negate the need for computer or Internet navigation skills (Teolis, 2010). The assumption that all groups have equal access to digital ICTs should be questioned in all settings, and strategies and policies developed to address the needs of those who miss out, or who need additional assistance in using and benefiting from digital ICTs in terms of any or all of the three literacies we have identified.

Finally, from a whole of population access viewpoint, targets for achieving coverage of digital ICTs should reflect the complexities of the digital gradient. Simple population figures (for example to achieve a 20% increase in households with home Broadband access) should be changed to address equity (for example to reduce the difference in home Broadband access between the top 20% of households and the bottom 20% of households by 30%). With the constant changes in technology type and complexity, it is necessary to continue questioning differences in the quality of use and whether all people have the resources, skills and motivation to make beneficial use of any technology. Further research should also be conducted to identify how moves to introduce or expand digital communication in health services will impact on equity of access and use for consumers. Health promoters can play a key role in lobbying for the collection of data to identify equity targets and advocating about the importance of digital inclusion to health and well-being, including in terms of government wide e-strategies and approaches.

CONCLUSION

Access to digital ICTs is a crucial social determinant of health in the twenty-first century and is not just a matter of technical access but is determined by people’s history of and current access to social, cultural and economic capital. It is vital that health promoters understand, and account for, the complex interaction between digital literacy, health literacy and fundamental literacy. Exclusion from digital capital creates a vicious cycle of disadvantage, and health promotion has a role to play in working to interrupt this cycle and to promote and advocate for processes that encourage digital inclusion, in order to contribute to the goal of greater health equity.

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