Looking across digital divides: possible interventions in inclusive and accessible service design

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Abstract

Traversing the numerous studies of minority groups and the access to technology highlights the necessity of rethinking the popular notion of 'digital divides' by which particular communities are considered disadvantaged in their access to the Internet. The research points to pervasive technological determinism in the ways that services are designed to push users online regardless of the evidence that an array of minority groups prefer and use other means of communicating and seeking information. The 'digital divide' is evidence that information services have not been designed to be inclusive of a significant proportion of the wider community. It is also an inadequate model for conceptualising the diversity of technologies that are now used, as well as the literacies required to access them. Instead of dichotomising user groups, with minorities representing those who are disadvantaged and deprived of computers, there are persuasive business, regulatory and legal arguments for compelling service providers to consider their users as part of a spectrum of affordabilities, literacies and technologies through which their services are accessed.

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Introduction

Can minority groups on the 'wrong' side of the digital divide be collectively served by a set of inclusive service design principles / recommendations for accessible service design (beyond W3C) / universal service obligations? If so, what might these guidelines or practices look like and how could they be used?

The use of technology by minority groups has been studied, but in isolation. That is, it has been examined within particular marginalised communities rather than across them. For example, migrants and the ways that technologies are deployed to sustain connections between family members in different countries have been investigated extensively. Indigenous groups' appropriation of technologies to overcome distance in rural and remote areas has also been explored in depth. The role of technology in providing independence to people with disabilities has been scrutinised too, separately from that of older people. The findings from these studies of various minority groups generally sit in different disciplines and bodies of literature, with little to no comparative analysis of them. The paper will attempt to summarise and synthesise this literature with the aim of understanding commonalities in experience for the purpose of developing inclusive design responses suited to the needs of diverse groups.

Groups and communities who have largely been framed as being on the 'wrong' side of the digital divide include:
- New migrants and refugees
- People from non-English speaking backgrounds
- Older women
- People of low socioeconomic status
- People in rural and remote areas
- Indigenous communities
- People with disabilities.

They are characterised as in danger of missing out on the benefits of technological advances because they do not have the necessary literacies and skills to stay abreast of them. In other words, minority groups are represented as lacking in a digital world of information and communication technologies (ICTs), unable to keep up with the rest of us. Central to this thesis of the 'digital divide' is an evangelising of the Internet as the foundation of an information society constituted by informed citizens. This has been the basis for the push for e-government, in which all information and services of government departments can be accessed online. However, this seems contrary to the increasingly diverse technological landscape we now inhabit, which allows us to seek information and communicate in various ways.

With the advent of a National Broadband Network (NBN), what interventions can be made to persuade service providers that digital inclusion is not a 'minority' issue, and must accommodate a diverse constituency of people and devices?

Literature review

It is estimated by Barnard et al (2013: 1715) that nearly 70% of the world's population are 'digitally excluded' in the sense that they do not engage with digital products or services, or access the Internet. Underpinning much of the literature on the digitally excluded is a sense of deficit, that without Internet access, the group in question is deprived of a resource that others have:

'… to lag in the use of technology is to remain behind a veil of limited knowledge and opportunities.' (Green and McAdams quoted in Selwyn 2004: 370)

Clearly, this is a global majority, but much of the wider literature has focused on particular minority groups as being over-represented on the 'wrong' side of the 'digital divide'. However, many of the studies indicate that they are not uniformly disadvantaged in their ICT access or digital literacies. Indeed, some migrant groups have been shown to be technologically well connected with friends, family and across diasporas, while refugees were not (Buckingham 2007: 51). Leung (2011) found that refugees' experiences of technology had been impeded by war or natural disaster in their countries of origin that had destroyed technical infrastructures. Furthermore, displacement to intermediate countries meant having to learn whole new systems and processes of using ICTs, assuming there was availability. For those who had spent time in refugee camps, availability was often limited, or otherwise financially inaccessible. This impacts on the levels of technical literacies that refugees have when they settle in Australia, such that some have no experience of having a home phone or actually dialling a telephone number directly. Services that they are most familiar with are shared ones, whereby they pay for someone to make a phone call, or write and send an email or letter for them.

A series of reports commissioned by the Australian Communications Consumer Action Network (ACCAN) demonstrate how unreasonable it is to expect new migrants and refugees to be vigilant and informed consumers in the Australian telecommunications market. The case studies in the *Taking Advantage of Disadvantage* report (Footscray Community Legal Centre 2011) illustrate the difficulties in navigating the complex technical and contractual landscape of mobile phone deals, bundles and capped plans, especially in the context of limited English language proficiency and illiteracy in a migrant's native language. According to the *Communicating Difference* report (NEDA 2010), one in four telecommunications consumers in Australia is from a non-English speaking background (NESB). For NESB consumers, the phone – whether landline or mobile – is a key technology, both more familiar and meaningful than a computer. The Internet is alienating because of the way content is presented and the lack of available multilingual information. Therefore, access to services that are supposed to be universal – such as health and education – is impeded. Indeed, the majority of participants in the *Telecommunications and health information for multicultural Australia* study (AHWI 2012) confirmed that they do not use the Internet to find health information. Culturally and linguistically diverse (CALD) communities are more open to using telecommunications for health care than the Internet. This is an important finding considering a key purpose of the NBN is to provide infrastructure to support new technologies in the healthcare sector (ibid: 9).

It is often where these minority groups intersect that issues of access become more pronounced: for example, the 23% of older Australians aged over 65 years who are from migrant backgrounds will be affected by limited English language ability, limited technical literacy and limited affordability to access ICTs (Migliorino 2011: 107). There are also 281,000 Australians over the age of 65 years who have dual sensory loss, more than three times the number under that age (Able Australia 2011: 7). This affects their ability to communicate and so, support from interpreters, hearing aids or other assistive technology is required. In 2007, it was found that 40% of the European population had no Internet skills, with people of low socioeconomic status and older people over-represented in this statistic (Kluzer and Rissola 2009: 67).

Nonetheless, studies of seniors have also shown some to be active ICT users, although attention has concentrated on those that are inactive (Martinez-Pecino and Lera 2012: 876). The vast majority of active seniors owned mobile phones for the purpose of speaking to others, not for any other features such as taking photographs or accessing the Internet. They also felt the mobile was beneficial in cases of emergency but could easily live without one. Offering free training in Internet use in their native language was not sufficient to entice older people to use computers. Older people use the Internet at a lower rate than the rest of the Australian population, and anxiety surrounding technology use plays a big part in this (NEDA 2010: 66; COTA 2011: 4). International research also clearly shows that seniors are not using broadband Internet as much as other demographic groups, and are more comfortable using well-known, familiar, and cheaper technologies in order to learn or seek information (Naumanen and Tukainen 2009). This is also affirmed in Australia where ACCAN's *Where do I start? Female seniors and the Internet* report found that non-users of the Internet seemed to be as well informed as the Internet users in the study. That is, the non-users sought their information through other means (COTA 2011: 6).

Heart and Kalderon (2010: 211) suggest that older people who are experiencing health issues are less likely to use ICTs, as their focus is on other priorities and because their impairments may inhibit their access. That technology is not an immediate priority, too, has been asserted about other minority groups.

Radoll (2009: 319) confirms that in remote Australian Indigenous communities, big issues such as unemployment and poor health inhibit ICT adoption, although ICTs can contribute to community wellbeing (Vaughan 2011: 146). Thus, mobile phones have been used as learning resources in preference to computers, as more Indigenous people access the former than any other digital technology (Auld et al 2012; Johnson 2013). ACCAN's *Home Internet for Remote Indigenous Communities* report found that less than 6% of the residents in the study had a home computer or laptop and of those who had used a computer at some point, a third had never been online (ARC Centre for Excellence for Creative Industries & Innovation et al 2011: 11). Despite the availability of satellite broadband, adoption of home Internet was still low (ibid: 16, 35). However, about half of the population of the Indigenous communities studied had mobile phone coverage.

Data from the Australian Bureau of Statistics indicates that low income households located in non-metropolitan areas of Australia – which includes remote Indigenous communities – are the least likely to have computers or be connected to the Internet

(Atkinson et al 2008: 481). Goggin (2003: 35) explains that this may be due to country areas receiving services later than metropolitan counterparts and having to pay higher prices for those services. Wise's (2013: 1) study of low socioeconomic status consumers experiencing financial hardship found that mobile phone ownership was widespread with nearly half of the respondents using it as their only form of telecommunication. The mobile phone was seen as the most affordable, and as a result preferable to home phone and having a lower threshold to participation than other technologies.

Kluzer and Rissola (2009: 67) estimate approximately 16% of the population of the European Union to be socially excluded due to income poverty, low socioeconomic status and lack of employment: this population is also eight times more likely to be digitally disengaged and have lower digital literacies. Therefore, it is offline factors which define the disadvantage of the various minority groups, and this appears to be then 'mirrored' in their access and relationships to technology. However, it is also evident in the literature that these groups do not consider technology to address their disadvantage, and so have little use for or faith in new technologies, even if they are available.

The only exception to this is in studies of disability and ICT access. In the latter body of literature, the necessity of assistive technologies and their compatibility with computers and the Internet is discussed prominently (Dobransky and Hargittai 2006; Vicenta and Lopez 2010; Macdonald and Clayton 2013). Dual technical literacies are needed to use both specialised equipment and ICTs, and to make those technologies work together. In ACCAN's *Telecommunications & deafblind Australians* report, 90% of the participants surveyed were on a pension, with the majority stating they did not have funds to buy accessible devices (Able Australia 2011: 20). However, deafblind Australians were more likely to use landlines and computers with Internet access than mobile phones, largely due to the degree of compatibility with assistive devices (ibid: 24). A constant in the lives of people with deafblindness is isolation, so technology which enables them to communicate with others and access information is particularly critical. However, those who are deafblind have difficulty reading and writing in English (ibid: 8).

From minority to majority

The notion of a 'digital divide' represents these minority groups as having a deficit that needs to be fixed by giving them greater availability and access to the Internet. The NBN is one example of increasing availability of high-speed broadband to at least 90% of Australians (Australian Government Department of Communications 2014). Notions of availability and access become conflated in statements such as:

'The NBN will ensure that all Australians have access to very fast broadband … The government's aim is that all households and businesses should have access to broadband …'

However, availability does not equate to uptake and access. An NBN service will be present and operational, but the existing literature already indicates that mobile networks will be favoured over the NBN for the abovementioned groups and communities. Indeed, Prasad (2013: 229) concurs:

'Unlike roads, the provision of digital connectivity is not sufficient to ensure the empowerment or even equitable inclusion of the target population.'

'The NBN is unlikely to resolve issues of access and adoption.' (ARC Centre for Excellence for Creative Industries & Innovation 2011: 59)

Accessibility refers to the extent to which available ICTs can be accessed. The ratio of availability to accessibility can be configured differently. For example, there may be widespread availability of a particular technology, but the capacity to access it can be constrained by factors such as:
- levels of literacy in that technology
- the affordability of that technology.

Using Warschauer's (2013: 38) approach for understanding technology access through literacy, it is evident that for the minority groups discussed above, language literacies (reading and writing), digital or technical literacies, as well as financial literacy all inform their technology preferences. In other words, the minority groups discussed have chosen to access technologies that are suited to their levels of language, technical and financial literacy. For the most part, using a mouse and keyboard to access the Internet has not resonated with these communities (with the exception of people with disabilities, who are compelled to use assistive technologies with their computers because of their incompatibility with mobile devices). Firstly, much of the textual content on the Web would not be accessible to those who are 'functionally illiterate'. Secondly, the cost of purchasing a computer and the ongoing costs of Internet access are prohibitive when compared with telecommunications technologies. Thirdly, as a result of not using computers to access the Internet, those technical literacies are not developed.

The lack of language literacies not only refers to refugees and new migrants, people from NESB or CALD communities. It also encompasses the 54% of deafblind respondents surveyed in the *Telecommunications and deafblind Australians* report who found websites difficult to read. The Australian Bureau of Statistics cites just over half the Australian population as being 'functionally literate', meaning that 46% of adult Australians 'cannot confidently read newspapers, follow a recipe, make sense of timetables, or understand the instructions on a medicine bottle' (ABS 2012).

Levels of literacy, both language and technical, are linked in that those who lack English language skills:
- often need assistance brokering access to technologies, inhibiting their technical literacies
- are unable to access or understand online content without help
- are also hindered in their ICT access because of confusing telecommunications contracts.

There is also a strong correlation between low levels of language literacy and low socioeconomic status, as those with higher levels of education attainment and literacy have higher rates of employment (APC 2010). Therefore, it can be said that affordability of ICTs is an issue for nearly half the Australian population. Clearly, these are no longer 'minority' issues when:

- one in four Australians is from a NESB and Australia is becoming increasing culturally and linguistically diverse (AHWI 2012: 5)
- over one million Australians are from NESBs and also have a disability (NEDA 2010: 22)
- almost 20% of the Australian population have identified themselves as having a disability, with this percentage increasing as the population ages (Australian Human Rights Commission 2005)
- there is overlap in the experiences of minority groups: English as a second language cuts across refugees, new migrants, older people, low socioeconomic status groups and people with disabilities. Similarly, there are older people in each of the other groups.

With such a significant proportion of the Australian population affected, it is necessary to rethink the push for e-government, in which all information and services of government departments can be accessed online (Commonwealth of Australia 2009). The solution is not to simply increase digital or technical literacy through training, as this only addresses one of several literacies required. Rather, it is necessary to design services that are grounded in an understanding of the range of literacies and technology preferences of different communities. What instruments might be useful – whether legal, regulatory or financial – in persuading service providers to be inclusive of diverse groups, technologies and literacies?

Instruments of inclusion

The evidence presented thus far makes a compelling business case for inclusive design, otherwise known as universal design. This approach, which involves 'designing a world which works for everyone, regardless of ability' (Coleman 1999: 165), takes the view that rather than excluding groups of users due to their preferences, location, level of literacy or technical skills, the onus should be on suppliers to design products and services that are considerate of such diversity.

Where inclusive design has largely been discussed in relation to disability (Abascal and Nicolle 2005; Newell and Gregor 2000), its remit can be extended to all the minority groups discussed above. In doing so, inclusive design cannot be regarded as simply accommodating minority group issues, as not being inclusive alienates large segments of the market and population. It also goes beyond an ethical approach to service provision, and becomes good business sense.

In the disability sector, we have seen the need to adhere to Web accessibility guidelines enshrined in law (AHRC 2010), such that failure to provide information and services in ways that are accessible to people with disabilities (and especially any assistive technologies used) can be dealt with under the Disability Discrimination Act. Is it possible that a broader application of the law could require products and services to be designed to accommodate other minority groups as part of the Anti-Discrimination Act? Or could we see accessibility guidelines widened to encompass technologies other than the Web?

An alternative to making an ethical, business or legal case may be to regulate. One approach may be to revisit the notion of universal service. Given (2008: 92) regards the Universal Service Obligation (USO) as one of many instruments that can

be used to ensure universal availability and affordability. Where previously it has only applied to standard fixed line telephone, application to a wider technological marketplace would enable fulfilment of both rights-based and legal dimensions of universal service (ibid: 172). A rights-based definition suggests access to telecommunications (and other technologies) as a basic right of all citizens as it is considered a 'consumption norm', a 'primary good' and a 'bare essential' (Prasad 2013: 228) such that it is required for those citizens to function in society and those who cannot afford it risk social exclusion. A legal definition of USO implements this by requiring:

- universal geographical availability

- non-discriminatory access in terms of users and platforms

- reasonable costs (Blackman 1995: 172).

Kent (2007: 110) argues that a USO must go beyond geographical availability in order for access to be universal. Rather, all three aspects of a USO – the notions of 'universality', 'service' and 'obligation' –need to be interrogated separately in relation to access, affordability and the current technological landscape. In order for a USO to have broad reach, Kent (ibid: 117) recommends that it should be 'ambiguous', high level and principles based, instead of tying it to particular services and funding models.

Conclusions

Traversing the numerous studies of minority groups and the access to technology highlights the necessity of rethinking the popular notion of 'digital divides' by which particular communities are considered disadvantaged in their access to the Internet. The research points to pervasive technological determinism in the ways that services are designed to push users online regardless of the evidence that an array of minority groups prefer and use other means of communicating and seeking information. The 'digital divide' is evidence that information services have not been designed to be inclusive of a significant proportion of the wider community. It is also an inadequate model for conceptualising the diversity of technologies that are now used, as well as the literacies required to access them.

Instead of dichotomising user groups, with minorities representing those who are disadvantaged and deprived of computers, there are persuasive business, regulatory and legal arguments for compelling service providers to consider their users as part of a spectrum of affordabilities, literacies and technologies through which their services are accessed.

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