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*Reimagining Australia via disability and media:
Representation, access and digital integration*

Katie Ellis
Curtin University
katie.ellis@curtin.edu.au

Mike Kent
Curtin University
M.Kent@curtin.edu.au

Scott Hollier
Curtin University
scott@hollier.info

Shawn Burns
University of Wollongong
shawn@uow.edu.au

Gerard Goggin
University of Sydney
gerard.goggin@sydney.edu.au

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Abstract: This paper takes up pressing, yet sorely neglected, questions of disability and media to argue for a reimagining of Australia to be more inclusive of this group. To do so, we outline theoretical approaches to a reimagining of disability in society and culture. We then identify and debate the lessons from disability and media studies that help us to reimagine Australia. In particular, we focus on what we describe as the three key media models of disability in Australia—representation, access and digital inclusion. A key aim throughout this paper is to include the insights of people with disabilities themselves using the media in contemporary Australia. Our reimagining of Australia via disability

and media exposes both the ambivalence taken towards disability in contemporary Australia as well as the potential for change.

Keywords: disability; media; technology.

Introduction: Reimagining disability as social

Disability is typically thought of as an individual's problem that requires medical intervention, with little in common with other marginalised groups within Australia. Yet, disability is increasingly being reimagined in humanities disciplines as socially created by inaccessible environments and negative attitudes. Australians with disability are also increasingly identifying as a marginalised group with a common history and culture.

The social model of disability, first developed in the U.K. in the 1970s, has had a significant influence on a reimagining of disability in contemporary Australian society (Young, 2010). The social model offers a redefinition of disability whereby impairment is located in the body and disability is created by society (Oliver, 1996). Human rights models of disability extend the insights obtained via the social model and offer a framework for removing socially created barriers (Harpur, 2012). According to the human rights framework, people with disabilities have the same rights as everyone else. Like the social model, environmental, attitudinal and organisational barriers are recognised as creating obstacles to enjoyment of human rights. However, the responsibility is placed on society and government to ensure full inclusion of people with disability through environments that support human rights.

The United Nations Convention on the Rights of Persons with Disabilities (CRPD) offers a non-radical framework for governments to facilitate the enjoyment of human rights for their disabled populations. Among an extensive list of articles and obligations of ratifying countries (of which Australia is one), the Convention specifically addresses questions of accessibility to information and public space, and unequivocally calls for fair and progressive representations of people with disability as means to creating an inclusive society. Article 9 on accessibility declares "States Parties shall take appropriate measures to ensure to person with disabilities access, and an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communication technologies and systems ...;" Article 21 on freedom of expression and access to information highlights "Encouraging the mass media, including providers of information through the Internet, to make their services accessible to person with disabilities;" and in Article 8, on awareness raising and media representation, it states all parties will "... combat stereotypes, prejudices and harmful practices relating to persons with disabilities ...," and "... promote awareness of the capabilities and contributions of persons with disabilities" (United Nations, 2006).

In recent years, much of the public domain discussion of inclusion of people with disability in Australia has centred on the formulation, trial and rollout of the National Disability Insurance Scheme (NDIS)—what many would contend to be a national reimagining of disability. One of the only spawn of the 2020 Summit run in 2008 by then Prime Minister Kevin Rudd to reach adulthood, the idea of the NDIS was credited to

summit participant and philanthropist Bruce Bonyhady. He proposed the scheme as a means to "... shift from the current crisis-driven welfare system to as planned and fully funded National Disability Insurance Scheme that would underwrite sustained significant, long-term improvement in meeting needs of people with disabilities and their families" (Bonyhady, 2008; Burns and Haller, 2015). Subsequently, the Australian Productivity Commission was tasked with exploring potential for a scheme that would deliver "long-term essential care and support for eligible people with severe and profound disability, on an entitlement basis and taking into account the desired outcomes for each person over a lifetime" (Australian Government Productivity Commission, 2011). At its heart, the Australian Government Productivity Commission Report presented the NDIS as a productive and progressive measure that would encourage and enable people with mild to profound disabilities to find employment, and free up family members to enter or return to the workforce. The Commission estimated there could be additional employment growth of 220,000 by 2050 and "its benefits would significantly exceed the additional costs of the scheme" (Australian Government Productivity Commission, 2011). The Australian Government announced launch sites for the NDIS in 2013 and gained bipartisan political support for a federal levy to fund its rollout to completion in 2019. The NDIS was widely endorsed and championed as a scheme that would help "... hundreds of thousands of Australians with disability and their families to have opportunity to participate actively in their communities by providing targeted supports aligned to need" (National Disability Services, 2014).

In the contemporary transformations we describe in Australian society, culture and economy, the media has an important role in how disability is imagined—and how it might be reimagined. Much of the focus on disability and Australian media has centred on the notion of representation and meaning making. This analysis has been vital in setting the agenda for other related disability media work such as an exploration of access, accessibility, and the use of digital media in everyday life. In the three sections that follow in this paper, we outline what we describe as the three key media models of disability in Australia—representation, access and digital inclusion.

Representation: How people with disability react to news media representations of the NDIS

Much of the potential for reimagining disability in Australia is within the remit of the country's news media. There is broad support for the contention the news media has the capacity to set the public agenda (McCombs and Shaw, 1972; Deering and Rogers, 1996), and influence the way people think about other people, events and issues through story framing, even given the transformations of media and society in the past two decades. Some academics contend the news media also has a capacity to tell people what to think about, but it does not have the power to make them think anything (McCombs, 2002). There are numerous assessments of the role the media plays in society. Most of these highlight the media's ability to shape the way people think and its influence on personal choice and perceptions. Cohen (1963) noted the media may not be successful much of the time in telling us what to think, but is stunningly successful in telling us what to think about, words later echoed by Neuendorf (1990).

Frame analysis, first explored by Erving Goffman (1974), is considered "... a number of related, even though sometimes partially incompatible methods for the analysis of discourses" (The Cathie Marsh Centre for Census and Survey Research, 2008). Goffman considered framing to be an innate part of all social processes and necessary to facilitate understanding. Media studies academics have adapted Goffman's framing analysis to their own purposes (Entman, 1993, p. 52). Burns and Haller (2015) explored the presence of traditional and progressive representations of people with disability in reportage of the NDIS. They used both Clogston's and Haller's media models of disability (Clogston 1990, 1993; Haller, 1995) that divide coverage of people with disability into traditional and progressive representations (Table 1).

Table 1. Media models of disability (Burns and Haller, 2015).

Traditional		
1	Medical	Disability is presented as an illness or malfunction
2	Social pathology	Disabled people are presented as disadvantaged and must look to the state or society for economic support, which is considered a gift, not a right
3	Supercrip	The disabled person is portrayed as deviant because of 'superhuman feats,' or as 'special' because he or she lives a regular life 'in spite of' their disability
4	Business	Disabled people and their accessibility to society are presented as costly to society in general, and to businesses especially
Progressive		
5	Minority/civil rights	Disabled people are seen as members of a disability community which has legitimate civil rights and grievances
6	Legal	Disabled people are presented as having legal rights and possibly a need to sue to halt discrimination
7	Cultural pluralism	People with disabilities are seen as multi-faceted and their disabilities do not receive undue attention
8	Consumer	Disabled people are presented as an untapped consumer group and making society accessible could be profitable to business and society

These frames are vital in helping us understand both media representations of disability and how media access can facilitate social inclusion by recognising people with disability as a diverse minority group with legal and human rights. Increasingly as people with disability embrace the consumption of digital media such as video on demand and tablets and smartphones, they are also being recognised as an untapped consumer group.

The question of representation of people with disability is important in the context of news media coverage of the NDIS as the media has a part to play in public policy discourse. Burns and Haller (2015) identified 455 articles about the NDIS published in

high circulation Australian newspapers between 2008 and 2013 and, by using the media models as an analysis tool, found the vast majority (74%) contained traditional representations of disability—94% of those articles (306) represented people with disability within the social pathology media model where people with disability are seen as disadvantaged and reliant on the state for support. The study revealed that news media coverage of people with disability remains anything but reimagined and, for the most part, is mired in traditional media frames of pity and tragedy. While this is contrary to the NDIS architect's stated aspiration of maximising "people's independence and social and economic independence" (NDIS, 2014), it does not come as a surprise to people with disability interviewed by Burns (2016) in his exploration of news media coverage of the NDIS. The interviews were carried out as part of a larger research project, with interviewees self-nominating after participating in an online survey about news media representation of disability and, specifically, coverage of the NDIS.

Participants took part in semi-structured interviews to provide insight into what people with disability think about the media coverage of the NDIS and the representation of disability within that coverage. Eighteen people were interviewed (N=18), with participants de-identified. Each participant selected the mode of interview, most (10) choosing to participate via an exchange of emails, others (8) choosing a combination of email and telephone interviews. The interviews were transcribed and thematically analysed. The interviews aimed to "foster a sense of their understanding of their experiences" (Pain, Masullo Chen, and Campbell, 2016, p. 404).

Participants were asked 11 questions related to the representation of disability in the news media. This section reports insights obtained when participants were asked about how they felt about news media representation of people with disability and representations of the NDIS in particular. Participants focused on the media's lack of diversity when it comes to disability, the prevalence of stereotypes and the influence of welfare discourses. Despite this, many participants reflected on the potential for the media to offer powerful and progressive reimaginings. An understanding of identified themes informs an exploration of a reimagined representation of disability in the Australian news media and the media more broadly. The themes of individuality (lack of) and stereotype were recurrent, as represented by these responses:

I believe representation of people with disability in the media needs to be objective and pragmatic. It need to be clarified that one person's experience doesn't represent everyone else's experience. (Interview 1)

Mostly it's crappy—news media, and most other media, get stuck in the tropes of people with disabilities as either superhero or tragedy, and if you or your story doesn't fit either narrative you don't get represented at all. (Interview 2)

I think there's a tendency for news media outlets to focus on the pit or the pedestal, so we're either, super humans, Paralympians, inspirational. You know, people who overcome great barriers to achieve great things, or conversely we are um the pit where we are pitiful objects of welfare and charity and we can only be depicted in ways that objectify us and make us worthy of other people's pity. (Interview 3)

Similarly, when asked about coverage of the NDIS, traditional representations and themes of condescension and pity were present:

Well I think they're resorted to the puppies and kittens sort of thing ... that's how I refer to that kind of coverage 'puppies and kittens' you know 'chickens and ducks' aren't they cute haha, look at little the sweet little old lady, look at these sweet little child with a disability isn't she cute? (Interview 5)

The narrative was very much about help the poor disabled people rather than give people what they need, you know? So it was less of a human rights perspective. (Interview 3)

Once again, the majority of coverage related to the NDIS has focused on budgetary blow outs which has perpetuated the narrative of disabled people being seen as burdens on the system. (Interview 18)

My main issue with the reporting of the NDIS generally has been that it continues to portray PWD [people with disabilities] as users and a burden on society by continued emphasis on the economic cost without the corresponding reporting of the economic benefits. It's almost as though it is laziness, with the ease of vilifying PWD to make the rest of Australia feel better about themselves. (Interview 9)

The responses, however, were not universally critical of the coverage, with some observing progressive elements:

I think the representation of people with disability in the media under the coverage of the National Disability Insurance Scheme has been more accurate and positive. I think that the media is learning to understand what PWD can achieve and portray them in ways that focus on what PWD can achieve. (Interview 12)

When asked about how the media should represent disability, the responses were similar, if not identical. Themes of individuality, uniqueness and potential were dominant:

Not as a single group for a start. Like there really isn't a group of people with disabilities, and not a monolithic group anymore than you know Australians have a monolithic group or women are a monolithic group. There's lot of people with different opinions and also just that we're all complex, these human beings that we have, we're not just a tragedy on a stick or a superhero in a box to unpack every Paralympic year and tell inspiring stories around. (Interview 2)

I think they should have more stories about the average day person, and not use such emotive terms, you know rather more, report more of the facts, go a little bit easy on some of the objectives. (Interview 10)

People with disability need to be presented as people with potential. However, for them to achieve their potential, they need opportunity. Opportunity to work, opportunity to be independent and opportunity to make their own choices if they are able to do so. (Interview 10)

These interviews paint a picture of Australian news media still being reliant on traditional representations of disability, no matter the seemingly progressive nature of the overarching story. Set against this situation, these respondents provide insight into how they are represented in the news media, and offered a template as how to reimagine disability outside the traditional media models of tragedy and hero.

Access: Broadcasting and streaming Australia

Following analysis of representations of disability in the media, it is important to consider whether this group can access media. For example, as an audio visual medium, television can exclude people with impairments related to vision and hearing. However, television can be redesigned to allow access by people with disability. For example, captions provide the text version of speech and other sound on videos to compensate for hearing difficulties. Similarly, audio description provides a spoken narration to describe visual content such as scenes, settings, actions and costumes included between sections of dialogue for people who cannot see it. While deaf advocates have long campaigned for more accessible television via the provision of closed captions (Downey, 2007), for potential viewers with vision impairments, demands for access through audio description are only recently gaining traction (Ellis, 2015).

This issue came to the fore in Australia with the transition to digital television broadcasting. The government released a policy discussion paper regarding improving access to television for audiences with vision and hearing impairments and a review was conducted in 2010 (Department of Broadband, Communications, and the Digital Economy, 2011). A total of 22 recommendations were made by the review grouped into captioning, audio description and UNCRPD and Social Inclusion. Notably, recommendation 5 suggested a trial of audio description, which was subsequently carried out in 2012. In response to this trial, Lauren Henley articulated the importance of making television accessible to people with vision impairments as facilitating “social inclusion” (Henley cited in Australian Communications Consumer Action Network, 2012).

Responding to calls to introduce audio description on broadcast television, both government and industry predicted the introduction of video on demand in this country would result in a more accessible form of television for Australians with disability (Australian Government, 2008; Ellis, 2014). Netflix, in particular, was seen as having a potentially disruptive influence (Ellis and Kent, 2015). This has certainly been the case—subscription video on demand services have caused a major shift in the way television is used and consumed in Australia. Video on demand is streamed over internet-based online services and is not linear, giving viewers the opportunity to watch video at any time once the programme is available. Prior to 2015, there was a small subscription video on demand industry in Australia. Providers had limited content and the bulk of video on demand services used by Australians related to catch-up television or watching user-

generated videos on YouTube or Vimeo. However, 2015 saw the introduction of three new service providers in quick succession—Stan, Presto Entertainment and Netflix Australia. Popular commentary described the expanding market as the “streaming wars” and predicted consumers would be the beneficiaries (Tucker, 2016). However, despite great potential for accessibility, people with disabilities risked being left out of the video on demand revolution in television viewing.

A survey of 173 people with disability, along with 14 follow-up interviews conducted in 2015 (Ellis Kent, Locke, and Merchant, 2016) revealed people with disability like the choice and freedom offered by video on demand but not its limitations such as difficult set up and inability to integrate with assistive technologies such as screen readers. Cost is a significant prohibitive factor, particularly in the context of the lower income levels of people with disability alongside increased costs related to assistive technology. As consumers of video on demand, people with disability experience both the same issues the broader population report in relation to video on demand (geoblocking / licensing and connectivity) as well as those specific to disability (absent or inconsistent accessibility) (see Ellis, Kent, Locke, and Merchant, 2016).

The participants responding to Australian media representations of the NDIS discussed above (Burns, 2016) highlighted the notion of independence versus charity as a significant issue in reimagining disability in Australia via media. This reimagining of disability is also evident in the desire of Australians with disability to use subscription video on demand. However, video on demand providers have been ambivalent towards consumers with disability as a potential audience. Stan, Presto Entertainment and Netflix Australia all launched without an accessibility policy in place and, at the time of research, only Netflix Australia offered both captions and audio description. To a certain degree, then, the Australian government’s 2008 prediction that industry competition via video on demand would result in a more accessible television experience for people with disability was almost accurate (Department of Broadband, Communications, and the Digital Economy, 2008). This was reflected in the interviews where participants directly compared Australia’s approach to accessibility on broadcast television with Netflix’s approach:

Netflix has been excellent in providing closed captions, and far better than what is currently available for free-to-air (FTA)/on-demand (i.e. ABC iview, SBS on Demand) ... I get continually frustrated when trying to catch-up via on-demand, and finding things are not captioned, when they were on FTA (free-to-air) broadcasts ... or they have been captioned on original screenings in the past, but are no longer provided with captions on repeat screenings. Also, the accessibility of turning on captions on FTA on-demand services, is far more complex and sometimes impossible (i.e. not provided on iPad, or cannot be accessed via certain smart TVs).

This participant raises an important point regarding the ambivalence taken towards consumers with disability who require captions. Whereas the provision of captions on broadcast television is mandated by the *Broadcasting Services Act 1992*, it is not required on catch-up television nor subscription video on demand. Given this lack of legislative power, broadcasters will screen captioned versions of programs via broadcast television

and then uncaptioned versions online (Ellis, 2014). Similarly, accessible electronic program guides and interfaces are crucial in facilitating full access:

[The] Netflix app on [my] iPhone allows me to access lists of programs, and search and turn on audio description for those shows and movies that have it. I have control and am able to use the service. With regular broadcasting TV however, it's a matter of pressing buttons on a remote to find channels. Foxtel is completely visual and unusable by me. I couldn't use Foxtel independently because the menus are visual with no voice output.

These insights suggest people with disability, and specifically people with vision impairments, are also members of the Australian television audience and therefore are also seeking social inclusion. Further, the Netflix approach shows that the technology is available via digital distribution to improve television access for this group. Video on demand has shifted the concept of the mass audience in recognition that aggregating a number of smaller niche audiences (via personal recommendations, for example) results in a larger total audience share (Ellis, 2015; Napoli, 2011). While it is true that subscription video on demand has reimagined television in Australia, for people with disabilities, this site of potential social inclusion has again reflected the current ambivalence towards this group. Indeed, we should heed Ellis and Kent's caution against the technologically determinist view of technology as an inevitable source of liberation from exclusion for people with disabilities. As they note, "the uneven interface of the virtual and the analogue indicate that this inclusion is far from an inevitable consequence of development" (2011, p. 2).

Digital integration: New spaces of internet and cities

An important site of reimagining and remaking disability in Australia is in the use of digital media devices such as smartphones, tablets and, increasingly, the Internet of Things (IoT). For example, people with vision impairments can access newspapers using digital devices and screen readers.

For example, Goggin (2011) has observed that people with disabilities have adopted mobile phones to act as assistive technology in "creative ways." He notes the use of screen reading technology with GPS technology and locative media to provide greater accessibility. Indeed, the disability community are reimagining smartphone technology to be assistive technology in a wide variety of areas, including both personal communications, health service delivery—including mental health support and communicating accidents and incidents (Doughty, 2011)—and education and learning (Abbott, Brown, Evett, and Standen, 2013; Doughty, 2011). Similarly, the deaf community has used mobile video services to allow for signed communications through the phone service (Cavender, Vanam, Barney, Ladner, and Riskin, 2008) and also short message service technology in innovative ways (Okuyama, 2013).

As Söderström (2011) observes, smartphone technology has a "twofold property as a mainstream technology simultaneously functioning as an assistive technology" (p. 105). Morris, Mueller, Jones and Lippincott (2013) found that smartphones were removing the

digital divide for people with disabilities, and Hollier (2013) observed that these devices made previously inaccessible information accessible. McNaughton and Light (2013) also note that this type of mobile telephony increases the level of social inclusion for people with disabilities through the use of the medium when it is used in the same way as the non-disabled population. Notably, Ellis and Goggin (2015a, 2015b) and Spinks (2014) all observed that smartphone-enabled mobile technology provided people with disabilities assistance in navigating cities.

Yet, the unfolding of this media adoption and appropriation by people with disabilities involves considerable patterns of uneven and equal use, even to the extent of new forms of exclusion. This 'uneven interface' is the less well studied and discussed 'dark side' of digital media that we shall now explore in a case study of socio-technical evolution of the IoT in everyday life.

The IoT refers to how everyday objects and appliances can interact online with us and with each other (Burgess, 2015). The rapidly evolving interest and broad implications (Gartner, 2016) of IoT relates to a number of benefits such devices can provide, and these have been increasingly discussed and celebrated across a wide range of settings (Bunz and Meikle, 2017). While the presence of IoT is only just starting to seep into the home, the concept has been explored by manufacturers over the past two decades. For example, back in 2000 LG released its digital DIOS internet-connected refrigerator (Appliance Design, 2000) which offered many similar features to the connected refrigerators currently available. These included a built-in screen, web browser and email support, the ability to sense when products were removed, and the ability to connect to the internet to order new groceries. While, conceptually, the LG product seemed likely to gain traction, the reality was that it was not successful. This was primarily due to its primitive user interface, its inability for the refrigerator to identify specific products (beyond identifying if an item was present), the use of dial-up in some regions (which meant the refrigerator tied up the telephone line as the only internet-connected device in the home) and the US \$20,000 price tag. By contrast, modern technological advances offer always-on connectivity, intuitive interfaces, multiple control methods and a significantly reduced price point, making IoT devices far more practical and commercially viable.

From the perspective of people with disabilities, the method of engagement with IoT will be a key factor in determining if the benefits of IoT are realised and therefore provide additional disability-specific benefits. One aspect of this relates to the rapid evolution of built-in accessibility features into popular mainstream operating systems. This includes the presence of screen readers, screen magnifiers and switch key support in Microsoft Windows, Apple Mac OS, Apple iOS and Google Android (Media Access Australia, 2016). As such, interaction with IoT using mobile devices with built-in accessibility features via an app or digital assistant can provide an effective method of interaction. A second method is via a built-in interface such as a touchscreen on an IoT-based refrigerator.

Using IoT through a smartphone app or digital assistant has a number of uses for people with disabilities. It allows the user to engage with the device using an accessible interface, making it simple to provide commands to IoT and, in turn, find out information from the device. For example, a person in a wheelchair unable to reach buttons can use a smartphone app to interact with it. Another example is a blind person who cannot view a

screen on a microwave being given updates by a digital assistant as to how long the food has left to cook. Further, as standalone digital assistants such as Google Home and Amazon Echo gain in popularity, new opportunities for IoT interaction continue to evolve. As manufacturers battle for consumer interest and push their particular ecosystem (Carter, 2015) in the IoT space, it is important to consider the interface access implications to ensure that people with disabilities can also enjoy the benefits that IoT can provide.

However, there are obvious downsides—if the mobile device has a flat battery or is unavailable, it is not possible to interact with the device directly. To counter this, an interface on the device itself would enable direct interaction. However, it is unlikely that a proprietary built-in interface would have all the accessibility features needed, and a significant amount of training would be required to learn the accessibility features on that specific device. To address this, Raising the Floor have an initiative called the Global Public Inclusive Infrastructure (GPII) (Raising the Floor, 2017) which is based on IoT devices customising their interfaces based on user preferences stored in the cloud. While this idea is effective in concept, it has yet to be widely adopted due primarily to the need for a massive infrastructure project to set up the system, cooperation from stakeholders, and concern by people with disabilities about privacy and security of their disability-related information being available on the cloud.

While some of this seems futuristic, a useful perspective on the IoT can be provided by a digital technology that is already widely implemented and used by people with disabilities—smartphones. In Australia in 2016, there was a 77% penetration rate for smartphones, second only to South Korea's 88% globally (Pew Global, 2016). While there were initial criticisms about the accessibility of these devices for people with disabilities (Ellis and Kent, 2008), these devices now present significant universal design features to provide accessibility for this group (Apple, 2016; Google, 2016).

In particular, smartphone technology is a key way that the social inclusion of people with disabilities is being reimagined in relation to access to urban environments (Imrie, 2004). For instance, Cake and Kent (2014) explore how cityscapes have been retrofitted to enable better access for people with disabilities, with ramps and lifts applied to work around previously inaccessible stairs, curbs cut into the sidewalk to provide better access to the street, and Braille signage added to assist navigation. Smartphones can be used to assist with this by linking a person's location to nearby services through digital web searches, providing access to maps, and offering directions and links to local services and public transport. For people with disabilities, this can represent an additional layer of accessibility. Smartphones can provide information on the number of steps in a staircase, the presence of access ramps and their gradient, and the nature of ground surfaces likely to be encountered on a journey. They can also indicate the presence of accessible parking, the layout of stations for public transport, and they can be synched to transmit instructions audibly for directions and to indicate when crosswalks are safe. They also highlight the importance of the digital signatures of these urban spaces being developed in an accessible way. However, along with these affordances, smartphones also present challenges for people with disabilities. Complex operating systems can be hard to master, apps can upgrade and change, often in ways that limits their accessibility, batteries are not always charged, and GPS can struggle with outdated maps and with poor signal reception in buildings and built-up city centres. As Ellis, Kent, Locke, Hollier and Denney

(2017) note, “these technologies pose many opportunities and challenges for the disability community” (2017, p. 11).

In the Australian context, three of the authors conducted a study into how people with disabilities use smartphones to navigate urban environments, engaging focus groups of people who are wheelchair users and also people who are blind or have low vision (see Ellis, et al., 2017). The study investigated people in Perth, the capital city of the state of Western Australia, as well as the regional centres in the south west of the state.

The notable findings were that participants acknowledged that their smartphone was an essential requirement for navigating urban spaces and decreasing social isolation. Key benefits the devices provided include:

- GPS built-in functionality—examples include the ability to provide your location to taxis and other transport services, and the ability to identify the location of objects and places nearby such as accessible toilets.
- Mapping—specific guidance on going to a particular place.
- Quick web search—use of digital assistants such as Siri to provide an easy hands-free option to perform quick searches and find locations.
- Environment monitoring—identification of specific weather conditions in a localised area.
- Optical character recognition (OCR) and image recognition—identification of documents, signage and landmarks for blind and low vision users.

(Ellis, et al., 2017, p. viii)

This sense that the smartphone was an ‘essential service’ also needs to be viewed alongside another key insight—that participants with different types of impairments were using the devices in different ways. Wheelchair users, for instance, mounted their smartphone on their wheelchairs to allow them to use the phone while controlling the chair. They used the phones to seek information about wheelchair accessibility, including building access, accessible toilets, and topographical information such as sloping ground or steep inclines. They also made use of imbedded digital assistant technology to aid in using the smartphone, such as in sending texts or taking photos, and noted how this allowed greater independence in tasks that previously might have required the assistance of a support worker. This group also made heavy use of the GPS functionality imbedded in the phones to aid navigation and plan journeys.

Significantly, people in the study who were blind had less confidence in the GPS services on the phone. Despite this, this group also focused on the ability of the smartphone to aid in navigation, as well as features such as OCR. This group were more inclined to experiment with a greater variety of apps and the accessibility features of the phone. They were also more likely to be aware of the potential of other peripheral devices, such as an iWatch that can be used to navigate through haptic feedback (for example, vibrating once to turn left and twice to turn right) and bone conductor headsets that allows access to a phone’s audio features while not blocking sound from a person’s surrounding environment. While this group showed greater awareness of more disability-specific apps (see Wersényi, 2015), like the wheelchair users they generally made use of the same relatively common apps found on any smartphone. It was a case of reimagining existing

apps as assistive technology, rather than making use of any customised apps for disability access. This speaks highly of the universal design available through these devices and mainstream apps.

When discussing the design of urban spaces, Cake and Kent (2014) observed when thinking of designs that can exclude or include people with disabilities, “these decisions determine who is considered normal or within the parameters of participation in society, and who falls outside the definition” (p. 115). Smartphones, and their potential as an aid to navigating urban environments for people with disability in Australia, are now extending this participation envelope.

Conclusion

Public culture and spheres, as well as social, collective and individual lives in Australia are increasingly being reconfigured through social imaginaries, practices, experimentation, making, design, and cultures centring on media and technology. In particular, the reimagining of Australia via media technology engages and implicates disability. In this paper, we have aimed to introduce and discuss the three main models of media and disability via which Australia is imagined—representation, access and digital inclusion—and, as we have suggested, might be reimagined.

In the longstanding area of representation, we have drawn on research, especially interviews with people with disability, that presents a picture of Australian news media still being reliant on traditional representations of disability, no matter the seemingly progressive nature of the overarching story. In rich and productive contrast, we have shown how drawing on the practices and perspectives of people with disabilities offers insights into such media representations, as well as resources for reimagining disability outside the traditional media models of tragedy and hero.

In the area of access, often the most prominent area associated with disability in public discourses, we have examined the resonant case of broadcasting. What emerges is again something of a paradox—longstanding exclusion from the creation, distribution and consumption of stories via the crucial medium of television has only been very slowly addressed by traditional broadcasters and policymakers. Transformations in new television media have offered new possibilities, especially with the advent of streaming video and television services in recent years. Yet, while there are important advances here, industry practices are surprisingly poor and inaccessible, and policy frameworks cry out to be updated. Again, there are rich resources for hope and change here, in the innovative media creation and practices of producers, consumers, communities and publics alike.

The third model of disability and media we examine is inclusion, often discussed in the present time as digital inclusion. Via case studies of the IoT and smartphones in urban environments, we discuss their interplay, including the ways in which technologies are imagined; how technologies are designed and implemented, and what their affordances might be; how users take these up, with particular cultures of use and innovation; and the major challenges that typically still remain such as creating new spaces of exclusion

where, ironically, inclusion and possibility for diversity and justice, with digital technologies, cultures and formats, should be easy to realise.

In conclusion, contemporary disability and media offer powerful, far-reaching ways to reimagine Australia. Such transformations are well underway, but still are hampered in their take-up, reach and broader understanding. Thus, in this sense, reimagining Australia via disability remains a vital and richly promising venture, yet it is still unfinished.

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Katie Ellis is Associate Professor and senior research fellow in the Department of Internet Studies at Curtin University, Western Australia and the convener of the Curtin University Critical Disability Research Network. She has worked with people with disabilities in government, academia and the community and has convened disability research advisory panels. She has authored and edited nine books and numerous articles on the topic. She began a Discovery Early Career Researcher Award (DECRA) in 2013 to investigate the impacts of the changing television environment on the social inclusion and exclusion of people with disabilities.

Mike Kent is Head of Department and a senior lecturer at the Department of Internet Studies at Curtin University, Western Australia. Mike's research focus is on people with

disabilities and their use of, and access to, information technology and the internet. His edited collections with Katie Ellis, *Disability and social media: Global perspectives* and *Chinese social media today: Social cultural and political implications* with Katie Ellis and Jian Xu, were both published by Routledge in 2017. His book, also with Katie Ellis, *Disability and new media* was published in 2011. His other area of research interest is in higher education and particularly online education. His edited collection with Tama Leaver, *An education in Facebook? Higher education and world's largest social network* was released in 2014, and his collection with Rebecca Bennett, *MOOCs and higher education: What went right, what went wrong and where to next?* in 2017.

Scott Hollier is a senior research officer in the Department of Internet Studies and the Department of Electrical & Computer Engineering at Curtin University. He specialises in the field of digital accessibility and is the author of the book *Outrunning the night: a life journey of disability, determination and joy*. Scott is also an internationally-recognised researcher and speaker; consultancy areas include consumer-based support for service organisations, developer-based support for ICT professionals for web and app-related work, and support across different organisational roles to achieve compliance with digital accessibility standards such as WCAG 2.0. Scott also lectures at Edith Cowan University, Western Australia and the University of South Australia in the areas of information management and web accessibility. Scott is also an active participant in the W3C Web Accessibility Initiative Research Questions Task Force. In addition, Scott is legally blind and as such has both a professional and personal understanding of the importance of accessibility.

Shawn Burns is a journalism lecturer and PhD candidate at the University of Wollongong, New South Wales. He researches the representation of people with disability in news media, disability inclusion, newsroom practice and pedagogy. He is a former news journalist, new director and political media adviser.

Gerard Goggin is Professor of media and communications at the University of Sydney, and an ARC Future Fellow. He is author of various books on disability and media, including *Listening to disability: Voices of democracy* (2018, with Cate Thill and Rosemary Kayess), *Routledge companion to disability and media* (2018, with Beth Haller and Katie Ellis), *Normality & disability: Intersections among norms, laws and culture* (2018, with Linda Steele and Jess Cadwallader), *Disability and the media* (2015, with Katie Ellis), *Disability in Australia* (2005) and *Digital disability* (2003) with Christopher Newell.