The disability becomes secondary: The use of mobile devices by small business managers with a disability in Australia
by Graeme Johanson and Misita Anwar

Abstract
This article summarises an original qualitative research investigation into the use of mobile devices by small business people with a disability in Australia. It uses the limited available published literature, social inclusion theories, and data from interviews with five small business people about their use of mobile devices, especially phones, and the experiences of five key informants. This project found no prior research that deals with the topic. Most businesses managed by people with a disability are home-based. By merging theories with praxis we show that they adapt mainstream apps to their own special needs. They improve their independence, expand their networks, and maximise opportunities for unique business uses.

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Introduction
On a per capita basis, people with a disability more commonly manage a small business of their own than people with no disability. There are 2.1 million small businesses in Australia (Australia Department of Jobs and Small Business, 2019) and 13.5 percent of them belong to people with a disability. Australian people with a disability have a higher rate of entrepreneurship in small business (13 percent) than people without a disability (10 percent). It can be estimated that there are about 286,000 small business people in Australia with a disability (Centre for Applied Disability Research, 2019).

How we interviewed small business people with a disability who used mobile devices will be described later. They, and all of their peers, used mobiles and they believed that business would be ‘impossible’ without them (interview with manager, 9 May 2019). The Australian government is aware of the potential for technology to expand employment opportunities:
Technological change may ... increase workers’ ability to participate in the labour market. For instance, assistive technologies may expand the range of opportunities available to a person with disability, or allow some jobs to be done remotely rather than requiring someone to be physically present. (Australia Department of Jobs and Small Business, 2019)

Most businesses are reluctant to employ people with a disability. Very few not-for-profit organisations support them financially. The Australian government recently committed to create the National Disability Insurance Scheme (NDIS) for disability support, but it does not offer funds for training newcomers needing skills in business management if they have a disability, and normally the NDIS will not support funding for smartphones on the ground that they are a mainstream technology.

It has been observed often that mobile devices are ‘transformative’ for the disadvantaged (Haenssgen and Ariana, 2018). Small businesses and self-employment favour people with a disability. For an individual with a disability, mobiles can extend business networks, assist with physical navigation and mobility, help remove communication and attitudinal barriers, allow for extended family interactions, compensate for social isolation, provide networks for personal security, and facilitate group problem-solving with peers (Anwar and Johanson, 2015). For the daily chores of a small business itself, smartphones are used for marketing, promoting, sales, supply chain management, monitoring customers, obtaining business intelligence, linking to peers, banking, and archiving transaction details (Sellitto, et al., 2016).

It is not implied that smartphones will encourage people with a disability to engage with small business. But some important features of micro-businesses (those with five or less staff), often propel people with a disability towards them, rather than to another way of making a living. Reasons for pursuing this direction are: confrontation with prejudice, lack of finance, the convenience of home-based business, and a desire to keep control (Coleman, 2013). The bulk of micro-businesses are based in the home (Burgess and Paguio, 2016). This domestic link can offer the advantage that others in the home can assist in the business when required, but it also allows for distractions when a separation between work and home is not maintained (Burgess and Paguio, 2016). Personalised support networks are extremely important; in social inclusion terms, Nusbaum [1] calls them a demonstration of the human need for ‘affiliation’.

Collaboration among small business people with disability is widely practised, and competitive entrepreneurship is not common in their micro-businesses. Rather than striving heroically as individualists, small home-based businesses are ‘insecure’, may have few options, and they can struggle to make ends meet in fact. The prevalence of this set of stressful circumstances is unknown (Oughton and Wheelock, 2003). Bowman (2010) suggests that in sociological discussion of disadvantage too much emphasis has been placed on self-help, self-reliance, and the neo-liberal belief that all people are free and equal economically — as social agents. It has often been regretted that disability literature reinforces the language of individualism by stressing the importance of ‘independence’ as a life goal. Autonomy means very diverse things to different people (Toboso-Martn and Rogero-Garca, 2012).

Emphasis on an ‘independent life’ is common in the literature about disability and assistive technologies such as information and communications technologies (ICTs): ‘a disability is only actually a disability when it prevents someone from doing what they want or need to do’ [2]. This quotation uses the language of social inclusion as an ideal. More exploration of its implications is required, searching relevant theories.

Small business people have to be resourceful, leading to the assertion by commentators that they lack a strategic vision often, but they are very good at networking and planning for short-term ends (Capelo, 2014), and are committed to success (Johanson, et al., 2019).

This project aims to evaluate the benefits of mobile devices to small business people with a disability. The links between the first and second of the topics — that is, mobiles and all small businesses — have been
The capability approach

A key encompassing theory about human development and well-being is the capability approach (CA). Over several decades the non-economic processes of community and individual development have been described in detail by Amartya Sen, and his colleague Martha Nussbaum (Sen, 1999; Nussbaum, 2011). Recently Sen himself noted the benefits of mobile phones:

A telephone owned by a person helps others to call the person up, as well as receive calls ..., and so the increased freedom of the phone owner adds to the freedom of others ... The impact of more telephones is to make things more agreeable and more enabling for others ... IT has become an interactive culture across the world, and the important question is how we can make people more functionally efficient ... [3]

Functional efficiency is a preoccupation of CA enthusiasts (Toboso, 2011). Sen asks the fundamental question: what resources assist people to have the freedom to live the life which they want, and which they find valuable? (Chase, 2020; Oughton and Wheelock, 2003). Several terms which Sen and his supporters use require some elucidation, in order to understand how others have interpreted them since. The aim of the CA is to determine what individuals or groups are capable of, in order for them to find freedom to achieve their own secure identity and individual ‘well-being’. Well-being includes physical, intellectual, social, financial, mental, and personal satisfaction.

Economic and non-materialistic ‘resources’ both assist. Literacy is an example. ‘Commodities’, ‘input’, and ‘assets’ are part and parcel of resources. They include things like environmental assets, divergent cultural habits, social flexibility, open networks, fluctuations in power, different ways of thinking, and population changeability. The assets, subject to a range of individuals’ factors, must be capable of being converted into a ‘functioning’, which as a collection represents a person’s ‘capability’ to achieve a substantive, valued, personal freedom. A functioning is a state of being or doing which is achievable. Sen indicates in the quotation above that the mobile phone can be seen as an asset and commodity and functioning with potential as a widespread personal and collective capability (Van Den Hoven and Oosterlaken, 2012). A ‘capability’ is a set of functionings that an individual can take advantage of on a journey to freedom. It can be one potential capability, or a set of capabilities. Unsurprisingly, interpretations of the term ‘freedom’ vary greatly.
A complicating CA idea is the role of ‘conversion factors’, which is inserted between a functioning and a capability, to further explain influences on the relationship between a resource or asset or commodity and the achievement of certain capabilities (Sen, 1992). As an illustration, the main attraction of a mobile phone may be its design and colour to a sighted person, its appeal to status (as a function), but its functions as a mobile navigation device may hold more appeal to a person with impaired vision.

Sen identifies three types of ‘conversion factor’ (Robeyns, 2005), each of which affects the range of available choices and preferences. A conversion factor changes commodities into capabilities. The first factor, the ‘personal’ conversion factor, concerns our topic, in that it encompasses physical and mental health and discrimination. That is, personal characteristics concerning disability influence functioning and capability. Diversity of behaviours and choices is universal (Toboso, 2011). Secondly, ‘social’ conversion factors include public policies, traditional practices, and power relations, which relate to disadvantages associated with micro-businesspeople with disabilities. The third factor also applies directly: Sen’s ‘environmental’ conversion factor includes infrastructure, such as obstacles to physical mobility and access to mobile phone networks (Heeks and Molla, 2009).

To assist with understanding of Sen’s use of abstract imagery, examples of practical uses of mobiles can be posited (Johanson, et al., 2019). An asset may include simply access to a smartphone belonging to a family member; a functioning could be knowledge of how to make good use of a smartphone to call customer or to order supplies; a conversion factor may be government policy about mobile access in regional parts of Australia, or the cost of a permanent subscription; and a capability could be owning and paying for your own personalised smartphone. In these instances, personal ‘well-being’ may result from many functions and outcomes. They may include, perhaps, the immaterial pleasure of contacting friends and the emotional freedom that comes from secure access to a personal network, or increased income that may derive from extra sales online of a product or service from a self-managed business.

Harmonising technology, the CA, and structuration

The roles that ICTs and mobile devices in particular have in the CA, has been discussed extensively. Haenssgen and Ariana (2018) cleverly link technology to each CA feature, seeking to summarise and standardise many efforts that have been made previously. They managed to untangle the complex relationships between technology and well-being as outlined by Sen, Nussbaum, and more recent analysts. They review the enormous amount of available literature on the relationships.

A preliminary statement highlights the core conundrum: ‘there is no harmonised underlying notion of how technology should be conceptualised within the CA’ [4]. Outside conceptualisation is equally fraught. Part of the dilemma is that the net has been cast wide: for example, ‘technology’ includes almost any tool such as cars, bicycles, and mobile phones for mobility. Mobile phones ‘have intrinsic characteristics that can expand human capabilities and therefore fulfil fundamentally the same purpose as other inputs in the CA’ [5]. In the research for that article, slotting mobiles into a single CA category seemed to be unnecessary. For the authors, mobiles were pervasive and powerful — ‘transformative’, ‘freedom-enhancing’, and ‘agentive amplifiers’ [6] — ideal technologies for all of the CA concepts which aim to describe and evaluate development.

Detailed discussion of whether technology sits conceptually in Sen’s category of ‘input’ leads to a conclusion that it sits alongside all available ‘inputs’ which provide ‘capabilities’ and ‘conversion factors’, so that, so closely are mobile phones embedded in global daily life, that they are integral to the environments in which humans ‘learn to act and behave’ generally [7]. Haenssgen and Ariana resort to the theory of structuration by Giddens (1984) to emphasise the interdependence of social systems and human agents.
In Giddens’ theory, one shapes the other in a continuous cycle, making it impossible to separate the joint contributions of systems and agents to societal development. Giddens saw social systems as including infrastructure (such as telecommunications) and organisations (such as social networks), both manifestations of the human need for communication, orderliness, rules and sanctioned power relationships. It is not necessary here to decide whether Giddens should categorise a single mobile phone as a system or agent, or perhaps a merger of both (Kuipers and Bell, 2018). Giddens wrote:

The concept of structuration involves that of the duality of structure, which relates to the fundamentally recursive character of social life, and expresses the mutual dependence of structure and agency. By the duality I mean that the structural properties of social systems are both the medium and the outcome of the practices that constitute those systems. [8]

Giddens’s recursion theme applies in many instances in this study, which are described in the discussion section.

**Functional diversity**

Toboso (2011) in Italy took on the task of exploring the literature that connects the capability approach and digital devices to disability. He chose to focus on the CA concept of ‘functioning’. Extending his discussion to the context of small business owners was undertaken by Anwar and Johanson (2015). Like Toboso (2011), Sen (2009), and Nussbaum and Sen (1993) both acknowledge that a disability impacts on capabilities and well-being.

Toboso discusses the idea of ‘functional diversity’ as integral to the CA. His phrase is borrowed from earlier work in Spain (Romañach and Lobato, 2005), and from the scientific study of biodiversity. The more traditional medical and social models of human disability failed ‘to adequately describe the diversity of physiological and psychosocial functions amongst people’ [9]. For Toboso, diversity is a cause of social enrichment. People with a disability function behaviourally in unique ways, others have special expertise and skills (Chase, 2020).

Toboso firmly integrates diversity into the CA, describing a specific capability ‘set’ (combined functionings) that determine living conditions that promote well-being among people with a disability. Prescribed resources and economic value are put to one side to accommodate diversity’s influence. Use of the mobile phone in small business by people with a disability can be described as one such set. Toboso (2011) points out that mobile devices ‘modify human actions’ and in particular make ‘new actions’ possible for daily living. They fit with ‘the duality of structure’ from Giddens. The main benefit of mobiles is their contribution to effective use, opening up fresh capabilities for action, for people with a disability to connect with all, to integrate into all aspects of the information society [10].

This view sits well with our interview data, below, with the description of variations in the observed behaviour of small business people, and with Toboso’s aphorism that functional diversity is inherent to the human being — we all have a singular, characteristic mode of functioning [11]. If functional diversity was respected, discrimination would diminish. People are rarely completely transparent on first contact; discrimination comes into play in business when a disability is detected. Beforehand, it often does not seem to interfere with business interactions (Thomas and McDonagh, 2013). Functional diversity applies to all communications via mobiles, apps, and telecommunications by people with a disability. Mobile uses are very diverse — often tailored for them specifically. This point is further discussed in the analysis of interview data.

**Summary of theories**

This section draws together the threads spun by the theories just discussed, as a means to introduce our next
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The capability approach, and its concomitants, proffer powerful overarching theoretical guidelines for description and evaluation. Sen and Nussbaum acknowledge the permanent and ubiquitous effects of mobile devices on societal well-being globally. The benefits encompass efficiency, freedom, diversity, equity, empowerment, social inclusion, and accomplishment. An intellectual effort to ‘harmonise’ the place of technology in the CA paradigm concluded that mobiles should be embraced into most levels of the CA, and agreed that mobile devices are universally empowering for human agents. Structuration Theory endorsed this finding strongly, reinforcing the importance of ‘duality’, or the endless modifying interactions between systems (such as apps for mobiles) and agents (such as small business people). The two continue to grow inseparably in perpetuity.

Philosophical and practical analysis in this article of functional diversity applies it to the CA by reference to a capability set around digital devices. This paradigm encourages the replacement of a world view based on disability to a more positive perspective where disability becomes secondary to acquisition of universal capabilities by all, permitted by the technologies of the information age. Instead of focusing on being able to achieve, or not, it looks to different ways of achieving functionings.

Quite fresh opportunities are available to small business people with a disability. They can acquire expertise which once would have been limited by lack of mobility. Mobiles assist with the efficiency of communications that are tailored to their own needs, and networks are easily accessed on one device to assist to monitor domestic and business needs. A wide range of apps achieve navigational and work tasks that were once impossible. Online consultations enable local and global interactions. The requirement to manage finances or marketing are well served by mobiles, with a range of additional capabilities that small businesses with no disability do not require.

### Interview data collection

To check the relevance of theories to small business managers with a disability, five were interviewed by the co-authors in a place and manner of the interviewees’ choice. We used semi-structured schedules of questions about mobile technology and running a business with a disability. The demographic characteristics are described:

<table>
<thead>
<tr>
<th>Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment type</td>
<td>Blind</td>
<td>Deaf</td>
<td>Blind</td>
<td>Acquired brain injury</td>
<td>Blind</td>
</tr>
<tr>
<td>Business</td>
<td>Wood furniture</td>
<td>Counselling</td>
<td>Writer, craft</td>
<td>Mountain</td>
<td>Journalist</td>
</tr>
</tbody>
</table>
Participants numbered 2, 3, and 5 were interviewed twice, first in 2018 and again in 2019. This repetition permitted the emergence of some longitudinal data. Numbers 1 and 4 were interviewed once in 2019. Our interviews began with a purposeful sample which we identified with the aid of support organisations and professional contacts. Using the snowball technique, we identified additional participants gradually.

The five interviewees were all active small business managers with a disability who used mobile devices. We tried to strike a balance in selection of their features. We included three women and two men. They lived in cities and the country. Their ages ranged from 33 to 65. One was born with a disability, the others acquired it later in life. In some ways the later acquisition allowed for ‘before and after’ comparison. Four had post-school education at least, and three had postgraduate qualifications as well. They all fitted the statistical business category of providing services in the ‘industrial sector’, part of the 70 percent of national income generated by Australian services (Ruthven, 2016). They described their varied business activities as: design and manufacture of wooden furniture; yoga instruction, online and face-to-face counselling; mountaineering guidance, environmental activism, and book-writing; creative writing, tactile art, and freelance social work; and syndicated columnist for mainstream media.

The interview responses were transcribed and analysed using a grounded theory technique. Analysis was influenced by the “constructivist grounded theory” approach of Charmaz (2003). Key themes emerged during the analytical process (Walsham, 2006), which involved detailed categorisation and coding of the words and ideas used by the interviewees. Because the analysis was for only five interviews, it was done by hand, rather than by using computer software. A matrix helped to focus on the main points expressed by interviewees and to link them by core quotations to broad themes. The matrix respected the ‘voices’ of participants.

Most of the participants had been involved for a long time with professional organisations and were seriously supportive of disability networks. These connections enabled us as researchers to seek expert advice about small business and technology habits from key informants who worked professionally with people with a disability. Such advice provided additional valuable commentary and reflection. Most of the informants had their own disability. Their five interviews were analysed in the same way as we processed the transcripts of the business managers themselves. Their themes are integrated into the discussion section below.
Table 2: Demographic features of key informants.

<table>
<thead>
<tr>
<th>Number</th>
<th>Impairment</th>
<th>Business</th>
<th>Age</th>
<th>Location</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Deaf</td>
<td>Advocacy officer, Deaf association</td>
<td>40s</td>
<td>Melbourne</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>No disability</td>
<td>Co-ordinator, deafblind community organisation</td>
<td>50s</td>
<td>Melbourne</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>Blind</td>
<td>Adaptive technology consultant, national blind association</td>
<td>50s</td>
<td>Gosford</td>
<td>M</td>
</tr>
<tr>
<td>4</td>
<td>Blind</td>
<td>Chairman, national blind association</td>
<td>66</td>
<td>Sydney</td>
<td>M</td>
</tr>
<tr>
<td>5</td>
<td>No disability</td>
<td>Executive director, assistive technology company</td>
<td>Late 60s</td>
<td>Northern Sydney</td>
<td>M</td>
</tr>
</tbody>
</table>

Analysis and discussion

Mobile use for business activities

The first common theme to emerge from the interviews was that the business activities of a person with a disability who uses mobile devices is not dissimilar to that of a small business person with full abilities. All of the contacts of the interviewees used mobile devices as their main communications channel for business. The wood craftsman, in business for 10 years, owning as many new mobiles in that time period, had 600 names on his current mobile contact list. All his business associates used mobiles (manager, 9 May 2019). Our country interviewee noted precisely that mobiles ‘support all aspects of business, not just on the digital side’ (manager, 22 March 2019). A senior informant with more than 30 years of experience of assisting people with a disability, emphasised that mobiles have become indispensable in the daily lives of almost all people, not just for business people with a disability. The mobile is commonplace now for all microentrepreneurs (informant, 14 March 2019). Many of the business functions of mobile phones have been cited already.

One of our key informants with no sight, who worked for an organisation advocating for people with vision impairment, extended the idea of ubiquity further. In his view technology possesses a strongly democratic
This is a good age to ... be effective with your disability ... because the disability becomes secondary. You are just a person that needs different assistance, and the assistance has become more mainstream, not so much assistive technology-based now. I think that we are in age with augmented reality, virtual reality, artificial intelligence, remote assistance, all these are coming online, and it’s blurring the boundaries around what you can’t do these days ... We have to stop looking at disability technology and we have to start looking at mainstream technology and making it useful for everybody (informant, 6 June 2018).

The focus has shifted from disability. His opinion can be extended to argue that technologies have created a more level playing field for all — which for some is liberating. Our journalist agreed that her mobile was ‘absolutely essential for keeping track of everything ... Oh, I am so lucky to be in this time now’ (manager, 19 March 2019).

The transition from limitations caused by disability to widespread use of tools which enable universal experiences, are in evidence amply in the case of the interviewee whose life was interrupted by an acquired brain injury. When young he climbed remote mountains in Wales, the Himalayas, the Karakoram, Patagonia, Baffin Island, the Pamirs, and the European Alps. From 1986 he made a living by guiding other climbers. In 1997 he won an award for a popular new book on mountaineering. Then in 1998, at the age of 24, he was hit in the head by falling rock when climbing in Tasmania. His brain was damaged. After one year he left hospital with expressive aphasia and paralysis of one side of his body, and difficulty remembering. He finds people with disability very resourceful ... I have a very bad memory because of my injury. I rely on [mobile] alarms ... and reminders ... all the time for appointments (manager, 10 May 2019).

After the injury, he relied heavily on mobile devices. He continued his outdoor passions, climbing Kilimanjaro, kayaking, cycling, and caving, with assistants. He has written three more successful books, using his mobile to make mental notes, and to access his iPad. He dictates to his phone, and translates voice into text to his laptop, where he edits.

He ‘sells the books on the hoof’ from his Web site (manager, 10 May 2019). Half his 2018 income derived from outsourcing contributions. He cannot obtain a business loan from banks. On average he gives six presentations internationally and 20 in different places in Australia per annum, using a selection from 17,000 photos taken on his mobile, and using his mobile to operate his slide projections from his iPad.

This mountain adventurer agrees that he could continue his business without mobile devices, but that they have improved his life and business a lot. Most of his uses of apps are mainstream, but his combination of device options is unique, and is complemented by his daily reliance on the children’s app, Brain Trainer, for re-learning thinking patterns and mind games. His adaptation of mobile devices for his special needs illustrates functional diversity in action well.

Our interviewee who worked as a furniture designer commented that he had insufficient time to use social media to full effect: it can become a full-time job to run social media (manager, 9 May 2019).

A blind informant agreed: the embarrassment of riches in the realm of apps amounted to ‘the paradox of [overwhelming] plenty’ (informant, 4 October 2019). In addition, another commented that he had reduced his personal ownership of technologies from 25 to one smart, personalised phone (informant, 6 June 2018),
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merging multiple functions, in the past ten years. Admittedly for work he specialised in advising on assistive technologies, so he had extensive experience of the potential of many useful devices.

**Mobile promotes independence**

It is clear that mobile devices promote independence for people with a disability, and that they mix devices and apps to match their pre-requisites for self-reliance. This constitutes the second theme to emerge from the qualitative data. It is probable, and worth researching further, that small business people with a disability have greater need for an assemblage of mobile devices and apps than people without disability.

The furniture maker was emphatic that he could not gain employment in mainstream manufacture, in spite of his formal qualifications and experience of 10 years. He would be ‘laughed out’ the door (manager, 9 May 2019). He believed that resistant prejudice forced many people with a disability into their own micro-businesses. The NDIS provided him with no start-up training or advice (manager, 9 May 2019).

The deaf counsellor (manager, 4 June 2019) paid for small business instruction herself at the start of her enterprise, when she faced central government constraints. The NDIS would not allow her funding for an Auslan interpreter. (‘Australian sign language’ is abbreviated to Auslan, a form of communication that is widely used by Australians who are deaf or hard of hearing). Devoid of government help, the small business manager found an enthusiastic volunteer Auslan trainee to assist. Policy limitations were thus bypassed creatively. As the business grew, the helper was employed on a salary. In counselling she learnt heavily on mobile apps. Her mobile is ‘particularly helpful’, and she loves the freedom that it provides (manager, 4 June 2019).

As systems improve, any interference with free agency is regarded as a bother. According to the advocacy officer of a large state-based not-for-profit organisation for hearing impairment, the single most valuable contribution to improving smooth business interactions would be a new highly-desirable method, to enable direct and immediate telecommunications between a hearing customer and a deaf business manager:

> I am happy to help individuals ... We [deaf people] need a better mobile than a hearing person ... It would be really, really good to have something that would make a smooth interface between hearing people and deaf people. Something to make it simpler ... You would not have to explain that you are deaf ... It’s all too much trouble for many [hearing] people. They just can’t be bothered with it ( informant, 13 June 2019).

Research into translation of sign language into voice, and vice versa, is well under way, but has become bogged down because national sign languages compete with each other for acceptance into research projects. Artificial intelligence could lead to much smoother communications in future (Naranjo-Zeledon, et al., 2019).

**Harmonising technology with personal preferences**

The third theme to emerge from analysis of qualitative data is related to theme two. Theorists identified the necessity to ‘harmonise’ technologies with personal preferences, with the empowerment of diverse identities and with visions of social inclusion. Our data uncovered two elements of harmonisation: the desire to sustain small businesses long-term, to justify ongoing expenditure of energy, for personal pride and a sense of achievement, and to assist people with a disability; and the augmentation of durable supportive networks. Other aspects of these components were reported in a prior publication (Johanson, et al., 2019).

To demonstrate the use of computer technology to smooth the expansion and reputation of a small business, to avoid disruption, consider the business growth of the work of the yoga teacher and counsellor in the past
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few years. In parallel to development, this manager is careful to maintain personal health and internal peace as important life objectives.

She began business on her own 17 years ago, and remained modestly small, but has recently become a ‘provider’ under the auspices of the NDIS, with some infrastructure support, and now has 50 clients, and a staff of seven. ‘It’s been a very busy year’, she says ingenuously (manager, 4 June 2019). She is in the throes of forming a board of management. Expansion has required more use of online systems, which she integrates well — HealthKit for managing client interactions, her iPad for case notes and record-keeping, Facebook and Instagram for promotions, YouTube for uploading training videos, Reckon for accounting, an online clearinghouse for superannuation payments, and the Australian Tax Office portal.

She dreams of appointing a business manager, and employing a psychiatric nurse, to reduce her workload.

Technology does help me to manage ... I’m making sure that I make ‘me-time’ every day (manager, 4 June 2019).

Maintaining family time together is integral to her well-being. She walks daily, undertakes and teaches yoga, meditates, and engages professional supervision. Both her business and selective integration of ancillary technologies have broadened hand-in-hand. Harmonisation is a goal of both business and home life for her; she seeks out partnerships, whether personal, organisational, or technological.

When we interviewed the blind writer, craftswoman, and social worker from a country town, it was obvious that she contributed greatly to the community of people with a disability in collegial ways. ‘The mobile is basically the only phone that I use’, she said (manager, 5 June 2018), and it functioned for her for multiple purposes. Connecting to the e-mail list of Blind Citizens Australia is a synergistic habit. Travel to its conference in Hobart was aided by her ticket on her mobile phone, and by navigation devices such as Seeing AI and BlindSquare. She wears bone conduction headphones just in front of her ears, so that she can listen to her phone (on the headphones) as well as the sounds around her (in her ears). At the conference, she ‘viewed’ (that is, ‘listened to’) conference documents on her mobile, and listened to e-mail messages. She made notes with her Bluetooth keyboard on her phone. She found friends with her mobile. She used her laptop to stream webinar sessions.

She was very devoted to the progress of a literary community. She is writing a children’s book about a girl with a disability, for mainstream readers, making notes on her mobile. Before that project, she set up ‘Snap Journal’ online, which published original works by writers with a disability, or mental illness, or who were deaf:

I combine my experience as a freelance social worker with a warped sense of humour and a lifetime of low vision to create articles, plays, short stories and other creative tidbits that take my fancy (Taylor, 2020).

She also creates tactile handicrafts, photographing impressive images on her mobile. Mobile technology is a glue that binds her social, business and professional functions together.

The co-ordinator of the deafblind community organisation reinforced the importance of like-minded social interactions (informant, 24 July 2018). A mobile device, she told other researchers, can empower individuals with a disability. It provides a gateway to participating more in social activities ... We [at her community organisation] supported one deafblind man who had been working in packaging for 20 years. It was not until he got a mobile device that he was able to communicate directly with his colleagues for the first time. He found out that the man...
who worked next to him had actually been a high-school classmate. [12]

**Systems adaptation for diversity**

The fourth and final theme to emerge from interviews with managers and key informants was the knowledge that systems, products, policies, and structures could be altered to suit the needs of people with a disability in business. They may press for universal change, or just adapt and modify existing functionalities for themselves. ‘Duality’ had two parallel effects: to improve the infrastructure so that it satisfied the diverse needs of people with a disability, and to permit functional diversity within conventional frameworks. Several cases have already been cited in this article of unique combinations of uses of mobile apps that demonstrate that individuals require no licence to mix and match freely.

Another straightforward illustration showed the power of one individual to achieve change. The near-blind furniture designer in Hobart travelled to overseas conferences to give presentations, and advocate on behalf of designers with a disability. Having been to six different destinations in four years, in interview he nominated navigational aids as the primary benefit of his mobile. He taught in London. He had clients in the Cayman Islands, Dubai and Panama. He used AIRA, Be My Eyes, BlindSquare, Seeing AI, and Victor Reader Trek. All were adequate, he said, except the final app, which lacked detailed overseas maps. For nine months he lobbied the app company, and managed to have the required directions added to the app (manager, 9 May 2019).

In a perverse manner, in relation to the intended purpose of a mobile, the non-use of devices can be perceived as a positive adaptation in some circumstances. The inertness of the phone can reassure that an unwanted eventuality has been avoided. The mountain adventurer suffered from epilepsy after his accident:

> I do have my mobile set up so that all of my family know where I am ... I can quickly call someone [in emergencies] (manager, 10 May 2019).

He leaves the screen of the phone unlocked. If he does not use the mobile for rescue, then all are aware that his welfare is secure. The simple presence of the mobile has instrumental value. The same can be observed with the furniture designer who keeps a dedicated mobile phone in his workshop, only to be used in the event of an emergency. It has never been necessary (manager, 9 May 2019). In a similar vein, the writer, craftswoman and social worker can feel more certain by using Tile Mates. They are an app consisting of Bluetooth-enabled trackers which attach to domestic items. They assist her, in spite of her vision impairment, to locate ‘lost’ items by a noisy alarm noise on her phone (manager, 22 March 2019). She has never needed them.

**The interplay**

How well does the data from small business managers and key informants fit with our adopted theories, and vice versa? A synthesis of the theory and praxis merges the themes of the qualitative data with the more speculative theories about mobile devices and disability, and our endeavour to apply them to small business. They happen to mesh together neatly.

Both theory and field data suggest that mobile devices are necessary for all small businesses, whether the managers have a disability or not. Few core business functions are not assisted by the use of apps and mobile devices, but managers with a disability use more specialised apps that are related to the disability specifically. Additionally, the manner in which mobile devices are used (or not, in the case of instrumental uses) is more varied and unconventional among managers with a disability.

Independence of small business operators with a disability is enhanced by use of mobiles. Their range of uses for daily administration and personal mobility is enormous. Professional networks and business scope
The disability becomes secondary: The use of mobile devices by small business managers with a disability in Australia

expand as layers are added to the more humdrum business uses. Much activity in the used range supports others with a disability. In addition to making a profit, business managers are keen to help their own — such as deaf clients receiving online counselling, or a partly-disabled mountain adventurer selling copies of his books by crowdsourcing, or another blind author writing and editing literary content for the enjoyment of visually and hearing impaired, and intellectually disabled.

Mobiles promote expansion of business reputation and clientele as well as (often in conjunction with) networking within a disability group. Empowerment, identity and inclusion are augmented.

Toboso’s and Giddens’ theories deem that no system, product, policy or infrastructure is static, and that dynamic harmonisation (Haenssgen and Ariana, 2018) is stimulated by interactions between them and their users. In our cases duality invested individuals (with a disability) with powers of behaviour modification, and with the capacity to develop and refine mainstream devices. People with a disability battled discrimination always, but were resourceful. They were assisted by assorted adaptations of technology for personal and business functions.

Conclusions

The assistance provided by the NDIS in Australia is not focused on the notional 286,000 people with a disability in small business. This article investigated the resources, and the relationships between small business people with a disability and mobile devices. No prior research on the links between disability, small business, and mobiles could be found. For this reason alone, the exploration of relevant theories and empirical Australian data in this article is original.

In relation to the small businesses themselves, it was found that the managers were committed and resourceful. Most of them were home-based because of the prejudices encountered in most businesses managed by abled people, the lack of start-up funding, the convenience of working out of home, and the proximity to family assistance.

Four related theories were adduced to advance the argument of this article, viz., that mobile devices are a necessity for all small businesses, whether managed by people with a disability or not, and that the phones can be exploited and adapted in special ways to suit the individual needs of people with disabilities.

Sen’s capability approach (CA) opens up many significant angles on human development, even if it is deliberately abstract. It requires the thinking of others, to usher it into realms of daily life. Haenssgen and Ariana (2018) are very aware that any propositions about development and well-being must come to terms with the role of mobile technologies, and they indicate that mobile devices can be slotted successfully into any stage of Sen’s approach. Irresistibly they are attracted to the power of another high-level theory, from Giddens, which argues that social structures are malleable when they encounter human agency. Give-and-take is the order of the day with Structuration Theory. The primary concern of Toboso (2011) is disability, but only with due regard to assistive technologies, especially mobiles. His co-invention of the concept of ‘functional diversity’ is ideally linked to structuration theory, but the connection is not explicit in his writing.

Data collected by interview with small business managers with a disability, and key informants who worked with and advised them in practice, confirm the relevance of the theories. We deduced that business people with a disability rely on mobile devices just as do people without a disability. But we found that managers with a disability mix and match the features of mobile devices to meet their own specific needs, providing them with freshly-discovered independence to do business, and for their personal development. The harmony brought about by use of mobiles for business enables the growth of successful, sustainable practice, and facilitates the extension of necessary social networks. Finally, the power of individual people
with a disability to modify infrastructure and policy to their own ends is discussed, and some of their unique mobile functionings are described. Obviously, the validity of these conclusions should be compared with the experiences of other countries. Small business is commonly the main driver of national economies. The World Bank (2019) estimates that one billion people live with disability.

Another avenue for fruitful research would be to map the various mobile functions adopted by small business people with a disability, to learn what they all have in common, and what unique business methods or personal adaptations occur. Such a model of use may assist with the modification and improvement of existing systems and the development of new apps. Opportunities arise for the application of artificial intelligence to sign language.

It is clear that training to manage a small business in Australia is entirely lacking for people with a disability, so research which identified learning needs would be a boon. A full user needs analysis of a curriculum to suit them might enable creation of special courses, perhaps for use on mobile phones.

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Notes

5. Haenssgen and Ariana, 2018, p. 100.
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**Editorial history**

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