

## The Varied Spectrum of Digital Engagement

### THE MANY FACES OF DIGITAL TECHNOLOGY

As part of a year-long mobile health (mHealth) pilot programme,<sup>1</sup> my research team gave out the exact same iPads to 28 type 2 diabetes patients. All the devices used the same 3G service, and had the same configuration to help patients manage their health condition. Six months into the programme, there were 28 differently configured devices, 28 different uses, and 28 different opinions about how the iPads had or had not helped in the management of diabetes. Tristan,<sup>2</sup> a 72-year-old novice iPad user, would use his iPad only once a day to record his medication. His iPad would be sitting on the kitchen worktop, reminding him to take his pills every morning. He never used it for any other purpose and it was rarely moved from the worktop. For Tristan, the iPad is an alarm clock that reminds him to take his medicine on time, which he had frequently forgotten before participating in the programme. He is happy that he has a new, visible reminder that works for him. Leah (F 52), another novice iPad user, after using the iPad for two months was taking it with her everywhere. Not only does she use it to record her blood glucose levels (BGL) and the meals she has, she also uses it for banking, Facebook, and email. Nowadays, she also uses it to chat with her family on Skype and to play mobile games with her grandson. In Leah's words, 'the iPad is my best friend, it goes everywhere with me'. Although Tristan and Leah both think their iPad is useful for managing

their health conditions, they use the device in vastly differently ways. And for Leah, the iPad has changed her life.

Leah came to the training sessions eager to learn about the new technology. When she was first diagnosed as diabetic, her doctor had given her a booklet to record her BGL and what she ate every day, but she found the process cumbersome. She needed something that could help organise her daily routine. Tristan, on the other hand, does not have to keep a detailed record of his nutrition and can get by with taking two pills in the morning. He has an old computer that he uses to check emails once in a while, but has mainly been an outdoor person. His son, who lives around the corner, comes by with his dog almost every day. Tristan and Leah have different motivations, lifestyles, and attitudes towards technology.

At an individual level, we can explain why some people are more eager to jump on the digital bandwagon, and why some are reluctant. In the long run, though, does it really matter that Leah uses her iPad for many purposes and Tristan does not? Perhaps not. However, at a societal level, the matter is not that simple.

There are various factors that influence the manner in which people adopt and adapt to digital technology. Obstacles are not always directly linked to the devices people use, and there are other elements that can carry over from the past. A trainee at a local Digital Hub<sup>3</sup> narrates the story of how long it took him to learn to use the internet because he did not know how to type on a keyboard. Keith (M 64) had never used a typewriter or a word processor in his life. His biggest frustration with the computer was using two fingers to type. Digital trainers emphasise the importance of learning how to 'swipe, type, and know where all the buttons are' (Park, 2014a). While this may come naturally to those who are familiar with digital devices, for a novice the same tasks pose a challenge. On the other hand, in restaurants and cafés we can often spot a family or group of friends who spend more time messaging and otherwise interacting with their phones than in conversing with the other people at their table. Some people are constantly connected to their onlinenetworks, which seem to have taken precedence over their offline interactions. So why is there so much variance in users' experience with digital technology?

In Australia, the first-generation iPad was released in May 2010, about a month after its US release. In 2011–2012, my team at the University of Canberra conducted a longitudinal study<sup>4</sup> of young adults to explore how people adapt to new devices. Thirty-five university students who had never used an iPad before were recruited as participants.

After a year, participants mainly found the device useful, as it provided unrestricted access to their social networks. The ability to socialise and maintain social networks was critical to university students who were aspiring to manage multiple networks:

The iPad has definitely changed the way I interact with people. I am more casual now, no longer rigid as I was earlier about making sure to attend gatherings, since I can chat with people anytime, not only on fixed occasions. (Diana, F 18)

We live in an increasingly digitalised world. Some people are no longer aware that a transition has taken place because they are already immersed in the environment, while others are still struggling to adapt and make sense of all that is happening around them.

Keith, at the Digital Hub, had been participating in a digital training programme for about eight weeks before he could comfortably send and receive emails, search for information online, and conduct various tasks on his computer. His motivation to learn was mainly because he felt that he was ‘becoming illiterate’ in a digitalised world:

You’re losing the ability to learn. If you want to know something everyone just goes straight on to Google and they come up with answer. If you want to see what’s on at the movies you go and have a look. I was losing that ability to participate and to find my own information. (Keith, M 64)

Once online, people exhibit a difference in their appetite for wanting to use devices and services. mHealth participant Parker (M 60) uses his iPad, mobile phone, and computer all day long, but says he will never create a Facebook account. Quite the reverse: his wife, in his words, is:

like one of those people, who when they come in and sit down at a place, the first thing they pick up is their phone; she checks her various messages and other stuff; she probably goes to Facebook because her sisters are on Facebook. As she loves it [her iPad], she would suggest that anyone who is new to the technology will also love it.

When 32-year-old Andrew first created his Twitter account, he spent 16–17 hours a day browsing through and reading tweets, and sending tweets to his followers. Although he managed to keep up with his work and personal life, there were times when he wished that he could

be alone with his mobile phone, without any interruption from work or family. Through a process of trial and error, he has now found an optimal solution to using his mobile phone. During the day he remains half attentive to Twitter feeds, although his phone is always within reach and the notification volume always on. Andrew is an activist who is experimenting with various ways to reach out to the community. For him, Twitter has been a life-saver.

David (M 17), a high school student and a participant in a study<sup>5</sup> on infrequent teenage internet users, always felt that he was different from his friends at school. He recently created a Facebook account because he did not want to be left out of parties and gatherings. It took him a whole hour to register and create a profile. However, he was still unable to add a profile photo or list his interests. After spending two more hours in front of his computer, he realised he needed some time with real people. After a week, David had not logged back on to his Facebook account. At school, his friend downloaded an app for him on his phone, but despite that he cannot be bothered to log in. Unless he has to call someone, he rarely takes his phone out of his pocket. At times, peer pressure creeps in and he feels awkward when he sees everyone glued to the screen during break. Even so, he just cannot picture himself as a tech-savvy person.

After she started to use an iPad, Madelyn (F 73), a diabetes patient in the mHealth study, instantly fell in love with it. As a voracious reader, she immediately downloaded free ebooks from the local library. She emails her family and friends. She records on an app what she eats to keep herself healthy and on target to lose weight. She had never expected to be this dependent on the device. She is an active person, who enjoys a daily walk and likes to spend time with her friends during the day. During the evening, however, she finds herself struggling to get away from her iPad. She cannot help clicking on the hyperlinks in news articles. She dawdles, reading about topics that she never before had any interest in. This way, as she remains preoccupied, two, even three hours pass by quickly till she realises that she has missed yet another good night's sleep. She is now trying to discipline herself to have brief iPad sessions throughout the day, and to refrain from using it at night. She still loves her device, but now feels she has greater control over it.

Sociomaterialism tells us that depending on their social context, personal preferences, and needs, people use digital technology for different purposes. New technologies are developed to accommodate human needs and the cycle continues. However, before the advent of the

internet, has any period in the history of technology proliferation seen such diversity in use? Has any other technology been so influential that it changed people's attitudes, perceptions, and social relationships in such drastic ways?

### WHY DOES IT MATTER?

As ubiquitous, affordable network connectivity becomes increasingly available, the question arises of why some people do not use, or make limited use of, digital technology. While the provision of affordable infrastructure and services is crucial to a person's digital engagement, it is not the only required condition. The access issue, getting everyone connected, can be more or less resolved with time, as eventually more people come online. The usage gap, however, is more complex. After getting access, factors such as motivation, skills, and social context will influence how people use digital technology. Varied levels and quality of usage may lead to a wider gap between those who benefit from digital technology and those who do not.

The value that the internet provides to users is not uniform, and some benefit more from it than others. This difference in outcomes can be caused not only by factors such as inability to use or underutilisation of technologies, but also by excessive use. As more services are provided online, and as more people are online, the risk of not being able to benefit from digital technology could also increase.

Much of the discourse on digital exclusion has focused on the lack of digital engagement. People who do not have adequate access to the internet, and those who lack the skills to participate effectively online, are labelled digitally deprived. The other end of the spectrum has users who make excessive use of the internet, sacrificing regular work or family life to make room for their addiction to digital technology. In the early days of the internet, addictive use was mainly attributed to abnormalities that led to functional impairment of daily activities (Douglas et al., 2008). However, there exists a blurred line between pathological dependence and overuse. Increasingly, people are experiencing fatigue due to being connected continuously to digital networks. Some may be glued to their phones playing online games, while some may just be in a state of alert for push message notifications on their smartphones. If overuse of the internet has an effect on the clarity of self, then it becomes problematic (Israelashvili, Kim, & Bukobza, 2012)).

By staying permanently connected via digital devices all the time, users are sacrificing their otherwise productive offline tasks (Park, 2014c). This is a form of ineffective use of digital technology that can lead to another type of digital disadvantage. Managing connection well is yet another skill. Light (2014) discusses non-uses or disconnection from social media in conjunction with connection. People may want to disconnect from certain people or organisations online; or they may want to disconnect temporarily. These types of non-uses are of emerging interest in the age of hyperconnectivity. However, that is not the scope of this book.

In the light of the foregoing, can we say that an optimal level of digital engagement exists? Is finding the right balance the ultimate goal, and will it be possible to apply it uniformly to everyone? The internet's characteristic of convergence makes it different from preceding communication technologies. It offers multiple functions and can be used in dramatically different ways. How often and what people use it for are not necessarily predictive of usefulness. Gurstein's (2003) concept of 'effective use' provides an alternative way to approach this matter. He defines effective use of ICT as 'the capacity and opportunity to successfully integrate ICTs into the accomplishment of self or collaboratively identified goals'. A standardised measure of effective use is neither appropriate nor possible. Rather, we should ask the question: can people use digital technology effectively to achieve their goals? If they have the resources, are equipped with appropriate skills, have the knowledge and awareness of available tools, and can use them with satisfactory outcomes, then we can say it is effective use. Thus, the focus shifts from mere use to achieving beneficial goals.

The internet has the potential to benefit individuals, organisations, and society. At a macro level, there are clear gains in digitally connecting everyone. The digital economy reduces costs for businesses and governments. It can create new revenue streams and improve productivity. For example, in 2009, the UK's Digital Inclusion Task Force reported that the added economic benefits in the key areas of education, consumer benefits, employment, and government efficiency would be £22 billion if everyone was online (PricewaterhouseCoopers LLP, 2009). For individuals, remaining socially connected, civic engagement, and economic opportunity are known benefits. Digital technology has the potential to enable people to connect with others, increase their productivity, and enhance civic participation (Baym, Zhang, & Lin, 2004; Hargittai & Walejko, 2008; Wang & Wellman, 2010).

However, it is not always clear what needs to be done to achieve a beneficial outcome. Individual-level benefits are harder to quantify, and not all activities result in positive gains. Some researchers suggest that ubiquitous access is a precondition for digital engagement, so that the user can acclimatise to the digital environment and use the internet seamlessly (Mossberger, Tolbert, & McNeal, 2008). We can also distinguish active engagement from passive use. There are studies which suggest that online activities are capital enhancing and conclude that only certain uses enable upward mobility among young adults (Hargittai & Hinnant, 2008).

My observation of Australian teenagers (aged 12–15) reveals that passive engagement with social media has negative impacts on young people's well-being, and increases stress (Park, 2016). However, in a different context, lurking online can be rewarding. Ryder (M 53), a participant in the mHealth programme who was given an iPad, likes to read stories written by other patients in an online forum. He anticipates never posting himself, but feels connected nevertheless. The opportunity to empathise with other people in similar situations, without having to interact directly, was just what he needed. Crawford (2011) explains these types of behaviour using the concept of 'listening' (instead of using the word 'lurking'), which is an important aspect of online participation.

This implies that the gains from online activities depend on the user's needs. It also means that the quality of engagement that is achieved through appropriate use of digital services is indeed a factor that needs to be considered. Engagement with technology is a complex matter. It is not sufficient to categorise users into active versus passive, or frequent versus infrequent. Everyone develops their own relationship with digital technology. It is an association that evolves over time. While in general people's attitude towards technology is relatively fixed, the momentum of their usage can easily change that state. This interplay between user and technology is the clue to understanding digital disadvantage. If the user is able to utilise the tools provided by digital devices and services, and can perceive the beneficial outcomes, then we can label it effective usage.

People who are not balanced in their use of digital resources are the emerging digitally excluded group. As much as digital technology is integrated into contemporary society, there are many people outside this sphere who are puzzled about how to embrace this new element.

## A GRADATED APPROACH TO DIGITAL EXCLUSION

In a highly digitalised era, the internet and digital services are increasingly affecting everyday lives and creating new forms of inequality. Those who do not have access to, or cannot make use of, digital technology are systematically disadvantaged. On the extreme end of the spectrum, spending too much time online can get in the way of other daily activities. We also know that, if used effectively, digital technology can improve the lives of many people. The key is to find out why some people are more digitally engaged than others.

When people are given more or less the same technology and devices, they use them differently. This can create a wider gap than before the adoption of new technology. Research shows that existing conditions largely influence the ways in which people respond to technology; that is, their education, social background, motivation, gender, as well as age, income, and opportunity costs. However, there are other preconditions that influence how people engage with digital technology, such as digital readiness, digital literacy, and social networks (Park, 2014a).

Globally, about 3 billion people (40 per cent of the world's population) are using the internet—78 per cent in developed countries and 32 per cent in developing countries (ITU, 2014). A few of the more connected countries are entering a highly digitalised era in which many services are offered online and the majority of people are digitally connected. As of 2013, in the USA, 84 per cent of people were online. This trend is similar in many of the other developed countries: Australia 83 per cent, Norway 95 per cent, and the UK 90 per cent. A casual look at these figures shows that a digital divide still exists.

Identifying the gap between those who have adequate access to the internet and digital devices and those who do not is a relatively simple matter. Those who have access to multiple devices with Wi-Fi, 3G/4G, or a high-speed broadband facility active round the clock, and those who have to travel 30 minutes to use a public computer, experience technology in vastly different ways. This is still an access issue. It may be expensive, but the matter can be resolved through market and policy intervention. While I am not saying that attempts to connect everyone are any less important, equally important is to address the emerging (and perhaps deepening) gap between those who are using the technology effectively, and those who cannot. The divergent use of technology poses a more complex problem where other sociocultural dimensions



are intertwined in the process. As the online population gets larger, this emerging second-level digital divide is more significant (Livingstone & Helsper, 2007; Park, 2012; Selwyn, 2004).

We need to modify the concept of digital exclusion to appreciate the gaps that exists between those who are not connected, those who are connected but do not use the internet effectively, and those who use the internet excessively. A closer look at the quality of access and use will help to understand the different degrees of digital engagement and the long-term consequences.

DiMaggio, Hargittai, Celeste, and Shafer (2004) identified three key issues surrounding digital inequalities. The first issue is access, which is the most-discussed topic. We need to consider whether the internet reinforces, alleviates, or sustains the existing divides and examine the overlaps between social exclusion parameters such as income, gender, education, and digital inequalities. The next issue is whether the internet influences the opportunities that people come across in their everyday lives. There are concerns about how divergent use of technology may result in a further gap. Finally, only a long-term perspective will help to decipher the impact of progressively newer technologies on institutions.

We can also view the divide as a social stratification, where there is a continuum of access (Warschauer, 2002), a series of divides (Barzilai-Nahon, 2006), or inequalities (Celeste, DiMaggio, Hargittai, & Shafer, 2004). As Selwyn (2004) suggests, binary notions of the digital divide along the lines of access and non-access can no longer be applied. We need a more nuanced and hierarchical understanding of the divide to distinguish between formal and effective access to technology, while recognising the mediating role of existing socioeconomic factors that influence digital engagement.

The ability to participate in key activities is crucial in determining inclusion and exclusion. The concept of exclusion emphasises the role of both structure and attitude in creating barriers within the context of social relations and communities (Saunders et al. 2005). By applying the concept of exclusion to those experiencing digital disadvantage, we can identify factors that arise from infrastructure, uses, and outcomes:

Digital exclusion should always be seen as embedded in a person's offline circumstances, and for this reason, this analysis of digital exclusion is grounded in the prior analysis of social exclusion. (Helsper, 2012, p. 405)

The human factor that appropriates and makes use of technology is crucial to understanding digital exclusion. It is finding the optimal digital balance that is the key to digital inclusion.

## PROFILING USERS

Several attempts have been made to understand the different levels of internet usage. Most profiling studies focus on the frequency of engagement. Selwyn, Gorard, and Furlong (2005) proposed four categories of users: broad frequent users (13 per cent of their overall survey sample), who reported making frequent use of the internet (i.e. ‘very often’ or ‘fairly often’) and used the internet for three or more different applications or purposes; narrow frequent users (18 per cent of the overall survey sample), who reported making frequent use of the internet and used the internet for one or two different applications or purposes; occasional users (11 per cent of the overall survey sample), who reported making occasional use of the internet (i.e. ‘occasionally’ or ‘rarely’); and non-users (58 per cent of the overall survey sample), who had not made use of the internet during the previous 12 months.

Increasingly, studies include attitudinal aspects in relation to users. The Oxford Internet Institute’s Oxford Internet Surveys (Dutton & Blank, 2013) reveal a distinct pattern of online engagement, with users segregated into five clusters:

- e-Mersives (12%): those who are at home in the online world and see the internet as a technology they can control. They also enjoy going online.
- Techno-pragmatists (17%): those who use the internet to save time and make their lives easier.
- Cyber-savvy (19%): those who have mixed feelings and beliefs about the internet. On the one hand, they enjoy being online in order to pass the time, find information easily, and become part of a community where they can escape and meet people. On the other hand, they also feel as if the internet is, to a greater or lesser degree, taking control of their lives because it can be frustrating and a waste of time, and an invasion of their privacy.
- Cyber-moderates (37%): those who have a moderate view in terms of their expectations and fears about being online.
- Adigitals (14%): those who perceive the internet to be within their control, yet feel frustrated because they find it difficult to use it.

We can also map the different types of online activity and create a hierarchy of uses. Longley, Webber, & Li (2006) categorised online users as unengaged, marginalised, becoming engaged, for entertainment/shopping, independents, instrumental users, business users, and experts. Similarly, Brandtzaeg, Heim, and Karahasanovic (2011) identified five different types of online users: non-users, sporadic users, instrumental users, entertainment users, and advanced users. Marcoccia (2004) identified three types of online newsgroup participants: eavesdroppers, casual senders, and hosts. People tend to play different social roles in online discussion groups, ranging from local experts to answer persons, conversationalists, fans, discussion artists, flame warriors, and trolls (Fisher, Smith, Turner, & Welser, 2005).

At the lower-usage end of the spectrum, non- and low-level users have been of interest in literature pertaining to the digital divide. The non-user end has been researched mainly from an inclusionary perspective. The conclusion is that there is no uniform reason for non-use. In addition to socioeconomic status or cost of adopting the new technology (Middleton & Sorensen, 2006), skills and efficacy (World Internet Project, 2010), motivation and disinterest (Reisdorf, 2011; Zickuhr, 2010), and attitudes and personal traits (Matei & Ball-Rokeach, 2003; Stanley, 2003; Verdegem & Verhoest, 2009; Vishwanath & Goldhaber, 2003) are reasons for non-use.

However, there are common traits among non-users. Here, by non-users I mean those who are not able to access the internet due to a lack of infrastructure, affordability, or other reasons that inhibit connection. Those who choose not to go online or decide not to access certain sites or platforms, even though they have the ability to, are not regarded as 'non-users' in this context. Non-users think that online content is not relevant to their lives, and they are not confident enough to surf the web on their own. About half (48%) of non-users cite issues relating to the relevance of online content as the main reason they do not go online. Only one in ten non-users say they would like to start using the internet in the future. Six out of ten non-users would need assistance to go online, and just one in five know enough about computers and digital technology to start using the internet on their own (Smith, 2010).

In a study comparing internet users in 10 countries, the expense of accessing the internet was not the primary reason for non-use. On the contrary, 'no interest/not useful' was the most-cited reason by non-users. They were simply not interested in going online. Another significant reason was because they were confused by the technology (World

Internet Project, 2010). Similar responses were reported in a study in the USA, where one-third of the non-users said they were not interested (Zickuhr, 2010). Individuals' attitudes and beliefs about their competence in using digital media were significant determinants of how people make use of the technology.

In addition, there are variations among non-users. Many individuals move back and forth between non-use and low-level use. In Sweden, a study found that among those who stopped using the internet, most did so because they were either not interested or did not feel the need to (70%), and only a small proportion did so because of cost (Findahl, 2010). The research also identified a 'hesitant' category who have access to the internet but do not use it. They comprise about 30% of the user group.

The pattern is no different among young people. Holmes's (2011) analysis of OFCOM's Young People and Media Usage Survey suggests that about one-third of 12–15-year-olds with internet access at home use the internet in a limited sense. Even where levels of technology access are high, some choose to stay away (Park, 2014b). A study conducted by Pew Internet (Smith, 2010) revealed that about one-third of non-users (34%) have some connection to the online world, either because they live in a household with an internet connection that other family members use, or because they have gone online in the past.

Mental access is as important as physical access in the adoption of new technologies. According to the technology acceptance model, in order to adopt new technologies people must perceive them as useful and find them easy to use. If we apply the technology acceptance model to the internet, the services should not only be available, affordable, and accessible, but users must perceive that there is a need to use the technology in their daily lives.

Employing panel data, Peng, Zhu, Tong, and Jiang, (2012) found that self-efficacy is a significant factor that determines the adoption intention of non-users. Non-users need a clear motivation and a belief that they are capable. Social pressure was also found to have a significant influence. Non-users intended to adopt digital technology in the future if they thought people around them were using the internet. On the other hand, time and cost were insignificant influences, a fact consistent with other studies that suggest cost concerns are only a minor consideration among non-users.

Studies have repeatedly demonstrated that not only financial considerations but also varying attitudes are important in determining whether

or not technologies are adopted (Matei & Ball-Rokeach, 2003; Stanley, 2003). Stanley's (2003) ethnographic research among 100 low-income adults suggests that rather than cost or lack of access, psychosocial obstacles such as relevance, fear, and self-concept were reasons for non-use. The perception of oneself as 'not-a-computer-type' was one of the critical factors that undermined computer use. Selwyn (2003) identified four attributes of non-adoption: deficiency, technophobia, intentional want-nots, and laggards. He critiques technological optimism and emphasises the importance of individual benefits, as opposed to social benefits.

While it is a useful exercise to examine the various types of uses and non-uses of the internet, the distinction between the haves and have-nots is still not clear-cut. What does it mean to have and not have? Does it mean access to computers and the internet, or does it include elements of usage? Barzilai-Nahon (2006) suggests a digital divide model that involves not only access but also use, social constraints, and affordability. The definition of internet use should include elements of frequency, time spent online, purpose, skills, and autonomy of use.

A clue to how we can define and identify effective use of the internet can be obtained by looking at the other end of the spectrum. What about those who use the internet continuously and excessively? The varying continuum from non-use to excessive use is based on how a person divides their attention and time between online and offline activities. Non-users of the internet are those who live their lives exclusively in the physical world. By the same token, excessive internet users are those who mainly reside online. Most people subsist somewhere in between, using relevant parts of what the online and offline worlds have to offer.

While being continuously connected is not negative behaviour per se, it can result in negative consequences. Charlton and Danford (2009) distinguish between pathological computer addiction and high engagement with computing activities. The main difference is that addicts experience negative consequences and find it hard to resist indulging in the activity, whereas highly engaged users do not result in negativity. Social media and other online activities that are interactive have the potential to become addictive and turn negative when they start to interfere with other activities. For example, messaging while having dinner with family can have a negative effect, as it deprives people of the opportunity to converse with one another.

An ad campaign for Australian Dolmio launched in March 2015 shows how families reconnect when the Pepper Hacker disconnects them

from the digital world. Based on its research showing that the average Australian household has twelve digital devices and that more than two-thirds have had an argument over technology at the dinner table, the advertising company came up with the brilliant concept of a device that disconnects the TV and the internet when a family sits down to have dinner (Alexander, 2015).

In the workplace, people are often overwhelmed by the 24/7 attention span that digital devices demand. Friedman (2014) urges people to take short technology breaks in order to prevent burnout, because ‘we’re surrounded by devices that are designed to grab our attention and make everything feel urgent’. Often we are not even aware of this. Powers (2010) has emphasised the importance of disconnecting from the digital environment. In a hyperconnected world, people at times aspire to be relieved from being constantly tethered to their phones.

When people encounter the digital world, they make use of their prior knowledge, networks, tools, and skills to adapt to the new environment. In this respect, some are better equipped than others. This precondition of digital engagement is crucial to understanding why and how people differ in the way they adapt to their digital surroundings. Deciphering users’ existing conditions, environment, and disposition is the first step towards understanding digital exclusion. In the next section, the concept of digital capital is used to provide a clearer picture of contemporary digital inequalities that are based on varying levels of digital engagement and personal outcomes.

## DIGITAL CAPITAL

People’s ability to absorb information is largely dependent on their past experience. If you are a coffee lover and have knowledge about different types of beans and methods of roasting, then it is easier to distinguish a smooth Costa Rican from a spicy Brazilian coffee. The same is true of digital technologies. An iPhone user can quickly adapt to an iPad, whereas to people who have never used a mobile phone before, it is simply an unfamiliar object.

Technology is not invented in isolation. It is introduced into an ecosystem consisting of older technologies. Prior experience with technologies is an important resource that users borrow from when presented with a new device or service. Exposure to preceding technologies affects their skills and attitude. People differ in their capacity to embrace digital

technologies because they are at different levels of digital readiness. Mobile phones were adopted rapidly because people were used to land-line phones and there were striking similarities between the two. Tablet computers tend to be adopted by existing laptop users without any difficulty.

A person's digital readiness is determined by pre-existing conditions, or what in this book is defined as digital capital. Digital capital is a pre-determined set of dispositions that influences how people engage with digital technology. Capital is the potential resource that one can mobilise in order to achieve certain goals. It is capital because it adds value. If someone has digital capital, it means that they are capable of using digital technologies to realise their goals. The potential to mobilise resources in order to create value is central to the concept of digital capital. Those who are equipped with digital capital can quickly adapt to new digital devices, even if they are yet to acquire the necessary digital literacy. The mere presence of digital capital enables them to obtain digital literacy efficiently, whereas those who do not have sufficient digital capital might be overwhelmed by the obstacles they have to overcome in order to reach the desired skill levels. For example, to a person who has never handled a keyboard, purchasing a computer represents less value than to someone who already knows how to type. Scholars have used similar concepts to describe aptitude for digital technology, such as technocapital (Rojas et al. 2004) or digital readiness (Park, 2014a). What these imply is that there are precursors to digital engagement, which influence how people adapt to new technologies.

Bourdieu's (2008) concept of cultural capital includes longstanding dispositions and habits formed over a lifetime of socialisation. It is what determines people's tastes and preferences. Only when people possess competencies can they appreciate the cultural experience (Throsby, 1999). As part of their upbringing and education, people internalise their disposition towards technologies, which they share with the people around them; that is, with those who are in the same social class or group (Rojas et al., 2004).

To explain the different kinds of digital engagement, Paino and Renzulli (2013) propose that a digital dimension should be added to Bourdieu's concept of cultural capital. Selwyn (2004) points out that a diverse range of factors—technical and non-technical, economic and non-economic—shape how people engage or disengage with technologies. These mediating factors can be best understood by looking at the

users' existing capital in context, such as their ability to appropriate available resources. Situating technology within the context of social practices is crucial for a better understanding of how these influence users and society (DiMaggio et al., 2004).

Morgan (2010) proposes that digital capital be understood in the context of a person's experience and level of digital literacy:

In the case of digital capital, embodied are practices, actions, and dispositions; instrumental exists in the form of artefacts and cultural goods which in this case can include digital abilities and skills as well as digital and physical artefacts; and, institutional is the objectification of cultural capital so some official worth is put upon it and so it can be conferred through a structured, sanctioned process. (p. 223)

He regards digital capital as one form of cultural capital because it 'has a relation with the three forms of cultural capital: the embodied, the instrumental, and the institutional' (Morgan, 2010, p. 222). While digital capital can mostly be aligned within the concept of cultural capital, there are other elements to what determines digital engagement that do not neatly fit the category of cultural capital. Some parts of it are reflected in economic capital and it also has elements of social capital. Sinnaeve, Tondeur, van Houtte, and van Braak (2010) describe access to and ownership of ICT as economic capital, whereas their appropriation and use is an indicator of cultural capital. These factors are compounded when they become part of a person's digital disposition. Socioeconomic status is related to computer ownership and access, but it also influences the users' attitudes and competencies.

ICT are different from other cultural products in that they are deeply entrenched in economic, cultural, and social realities. For example, in schools, students' ICT access and skills are preconditioned by the digital technology ecosystem, which is largely determined by economic capital. As a result, competencies vary among schoolchildren. The consequences of the varied uses and skills add another dimension. The internet serves as a social medium where users develop, maintain, and expand their social networks. The gap between those who use it to increase social capital and those who do not may widen. Those who are predisposed to knowledge and skills have an advantage over those who are not. In the absence of adequate digital capital, children of school age



are systematically disadvantaged in cultural capital, but also in acquiring social capital via digital technologies.

Technological goods and services are usually designed to appeal to more skilled users. This is because the prices of many of these products are driven by those who are willing to pay. They are not invented in isolation, but introduced over time amongst older technologies. The mix of new and old technologies can make it harder for new users to catch up. New technologies are introduced at a rapid pace, and those who do not have prior accumulated digital capital experience yet another lag in catching up.

The process of becoming digitally engaged is lengthy. Connection to the internet, or connectivity, is not a one-time event. To be actually meaningful to the user, connectivity needs to be taken through several iterations. Interviews with novices at using digital devices, who regularly attended training sessions at a community centre, reveal that the process of becoming digitally engaged entails the investment of time and effort. The pre-engagement phase where non-users acquire digital readiness can take anywhere between several months and several years. This is especially the case if the user has had little experience with prior digital technologies:

The first condition of digital engagement is to provide affordable access to digital networks. However, there are several other preconditions that must be met, including digital readiness, digital literacy, social environment, and user motivation. The technical aspects of learning the basic functions of digital devices are seemingly irrelevant to the content that people want to access. Nevertheless, those functional tools comprise an essential part of becoming digitally ready. The social aspect is also important, in that the local community surrounding the user—friends, family, and the media—have increasing expectations of digital competency. The fear of missing out or being left behind is one of the motivations to learn. Yet, most of all, non-users must perceive that digital technologies will benefit their everyday lives. Unless they perceive tangible benefits, acquiring digital literacy might be considered a boring and lengthy investment that some non-users deem worthless. (Park, 2014a, p. 144)

Cultural capital accrues through exposure and education, over a long period of time. The disposition towards digital technologies is formed through socioeconomic factors, as well as cultural and social interactions. In the late 1990s and early 2000s, Rojas et al. (2004) studied

the concept of techno-capital aptitude among ethnic minority groups by conducting interviews with twelve families in Austin, Texas. They talked about family trajectories, life experiences, and the social structures that constitute cultural capital, which influences how people perceive new technologies. People develop techno-dispositions, which influence interaction with techno-capital. Techno-dispositions comprise individuals' practices, perceptions, and motivation. Techno-capital refers to the accumulated skills and knowledge to utilise digital technology, which is closely tied to the other constituents of cultural capital. What these researchers found among lower-income ethnic minority groups was that people have both negative and positive dispositions towards technology. Ethnic minorities often rely on education for upward social mobility. In many cases, parents push their children towards technology-oriented degrees. The children, on the other hand, may not have an inspiring role model to whom they can relate, and media messages are, in any case, based on the likes and dislikes of mainstream users. Most teenagers in the study developed their awareness of the internet and computers through social networks, relatives, and educational inputs.

From a user's viewpoint, we can map a person's digital technology ecosystem, and where that person is positioned on the varied spectrum of digital engagement. The dispositions include various individual attributes such as income, age, gender, education, and attitude. Digital environmental factors, such as home access, affordability, and ubiquity, are also important factors. Societal influences, at both micro and macro levels, should also be considered. For example, local enablers such as social networks and the level of digitalisation of local businesses are crucial factors that shape an individual's level of digital engagement.

In a highly digitalised society, effective use means finding the optimal balance in the level of digital engagement, as well as the balance between online and offline worlds. Digital technology has the potential to add value to a person's life. However, further efforts are needed in order to establish a balance between technology, users, and the social context. Digital capital determines how much and how effectively people engage with digital technology. It is a useful frame to understand the complexities of an individual's level of digital engagement and factors that lead to such dispositions. By understanding the varied shapes and forms of the digital technology ecosystem of individual users, we can devise effective strategies to move forward towards a digitally inclusive society.

## NOTES

1. Project: Mobile digital communication and health management: An mHealth pilot program at the ACT GP Super Clinic (2014–2015).
2. The names of participants have been changed throughout the book. In some cases, names of locations have also been changed to maintain anonymity, with the exception of Adrian, the digital trainer, whose real name is used with his consent. Each participant mentioned in the book is labelled with either 'M' (male) or 'F' (female), together with his or her age, to provide some context. Whenever necessary, the type of user, location, and/or occupation is noted as well.
3. Project: Enhancing public organisations' digital literacy to facilitate online engagement (2013–2014). Digital Hubs initiative was implemented by the DBCDE as part of the National Digital Economy Strategy, where the Hubs were established in 40 communities with NBN access, as intermediaries to digital literacy training and engagement.
4. Project: The Impact of the Use of Mobile Tablet Devices on Communication Patterns and Digital Media Literacy (2011–2012).
5. Project: A multi-dimensional approach to the acquiring of digital media literacy among young people in regional Australia (2011).

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