

16. Information and Communication Technology

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This chapter presents data from the 2002 NATSISS as it relates to Information and Communication Technology (ICT) use, namely computers and the internet. While a number of determinants of ICT use have been well established, like education and income, there are other factors that have a similar impact on ICT use in the Aboriginal and Torres Strait Islander community. Presented here for the first time, these factors include health status, the impact of being on the CDEP scheme, the impact of the justice system, access to online services, and the overall digital divide between remote and non-remote Indigenous communities.

Firstly, it should be noted that this data is dated, in that since its collection there have been many ICT projects targeting both Indigenous and non-Indigenous communities at both the State and federal government levels. Such programs include the Telecommunications Action Plan for Remote Indigenous Communities (Department of Communications, Information Technology and the Arts [DCITA] 2002) and Networking the Nation Program (DCITA 1999).

Statistical analysis of the data has been conducted in this paper and where the term 'significant' is used, it refers to statistical significance. This is the first time this data has been collected, so a comparison with previous NATSISS data is not possible.

Usefulness of the data

Capturing ICT use in the 2001 Census was well founded, as it not only provided an overall picture of ICT use by individuals but it also allowed us to see whether there were segments of the population that were lagging behind others in ICT use or suffering from a 'digital divide'. The results of the national census clearly demonstrated that a 'digital divide' existed between the Indigenous and non-Indigenous communities. Capturing similar data in the NATSISS has enhanced the understanding of the 'digital divide' facing the Indigenous community. Unfortunately, only national data has been released by the ABS (2004c) which prevents a more localised region-by-region analysis of ICT use in Aboriginal and Torres Strait Islander communities. However, on a positive note, we can now compare remote and non-remote Aboriginal and Torres Strait Islander communities, which give us a better understanding of where government ICT policy and resources can be targeted.

Digital divide defined

The term digital divide has many connotations and there has been much research attempting to define the term. Fink and Kenny (2003) define the digital divide as:

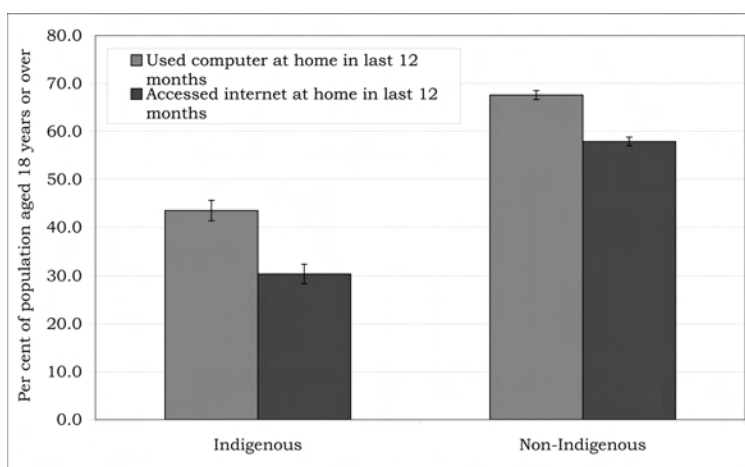
- a gap in access to ICT—measured primarily by the number of users or individuals with access per one hundred of population
- a gap in the ability to use ICT—measured by an individual’s skills set
- a gap in actual use—measured by the amount of time an individual goes online
- a gap in the impact of use—measured by economic returns or savings attributed to ICT.

This multi-faceted approach to defining the term ‘digital divide’ is drawn from a decade of literature that has emerged in the area, so it is a good reference point to understanding the term. The ABS collected data on only one aspect of digital divide, namely ‘use’, which excludes the other three aspects of digital divide. Data on use is by far the easiest to collect but leaves a large gap in truly understanding the extent of the digital divide.

Australia’s digital divide

To understand the depth of the existing digital divide within Australia it would be beneficial to first examine the differences between the Indigenous and non-Indigenous communities from the NATSISS data then more closely examine data as it relates to remote and non-remote Indigenous communities.

Figure 16.1. Home computer use and home internet use by Indigenous status, 2002



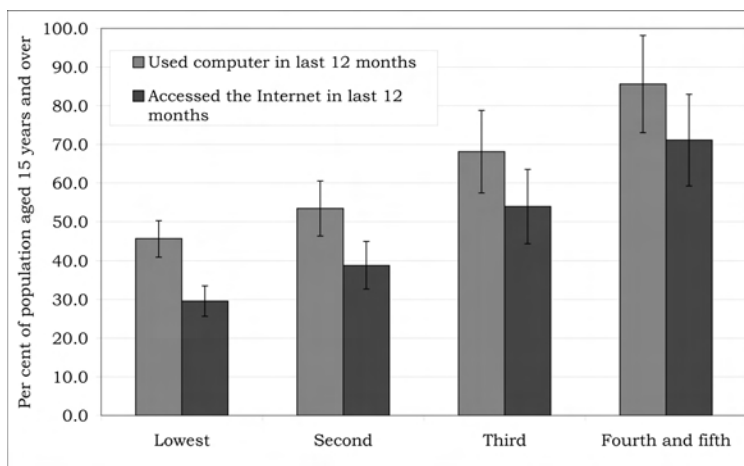
Source: ABS (2004: Table 5).

Figure 16.1 highlights the digital divide between Indigenous and non-Indigenous communities. It shows that at the time of the data collection 67.6 per cent of the non-Indigenous population had used a computer at home in the previous 12 months compared with only 43.5 per cent of the Indigenous population. Similarly, internet use at home was significantly different between the Indigenous and non-Indigenous populations, at 30.4 per cent and 57.9 per cent respectively. This significant digital divide between the Indigenous and non-Indigenous populations has been highlighted by Daly 2005 and shows that Indigenous people are two-thirds as likely as non-Indigenous people to use computers at home and only half as likely to use the internet at home (ABS 2004c).

Previous research has demonstrated that there are two key factors in determining ICT use in Australia, namely income and education level (Daly 2005; Lloyd & Bill 2004; Lloyd & Helwigg 2000). These determinants are no different in the NATSISS, as figures 16.2 and 16.3 clearly show a positive relationship between income and ICT use and education and ICT use.

Income

Figure 16.2. Computer use and internet use by income quintile, 2002



Source: ABS (2004: Table 9).

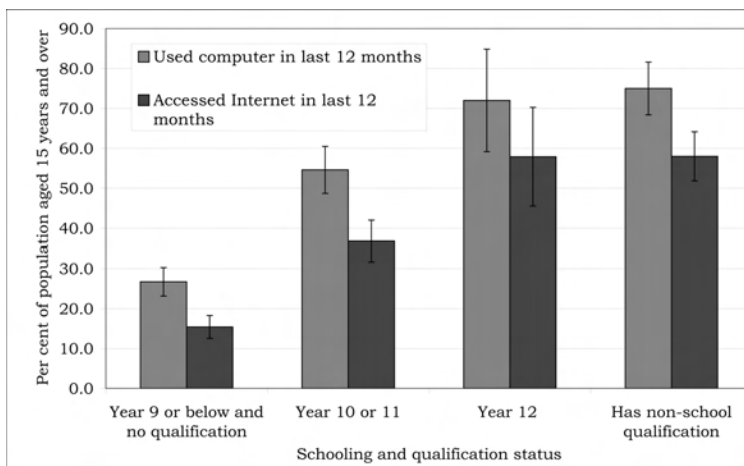
Specific individual income levels were not published in the NATSISS, so it is difficult to say which level of income would fall within which quintile. However, as a rough comparison using available data, the national mean equivalised gross household income for the non-Indigenous community is \$665 compared with \$394 for the Indigenous community. These figures clearly demonstrate that there is a significant difference in the mean household incomes between Indigenous and non-Indigenous communities. Therefore, we can say that the first quintile would be quite low and even the highest quintile would still be relatively low. While the mean household income of the Indigenous population is low in

comparison to the non-Indigenous community, ICT use still increases as income increases, making income a very strong determinant of ICT use.

While we may expect this, as previous research has highlighted this fact, we should still be aware of international research on how income and the digital divide is perceived. Mark Malloch-Brown from the United Nations Development Programme stated there is a ‘growing digital divide between rich and poor’ (quoted in Fink & Kenny 2003: 3), suggesting that we can only make inroads to the digital divide between Indigenous and non-Indigenous communities when Indigenous and non-Indigenous incomes are equal.

Education

Figure 16.3. Computer use and internet use by education level, 2002



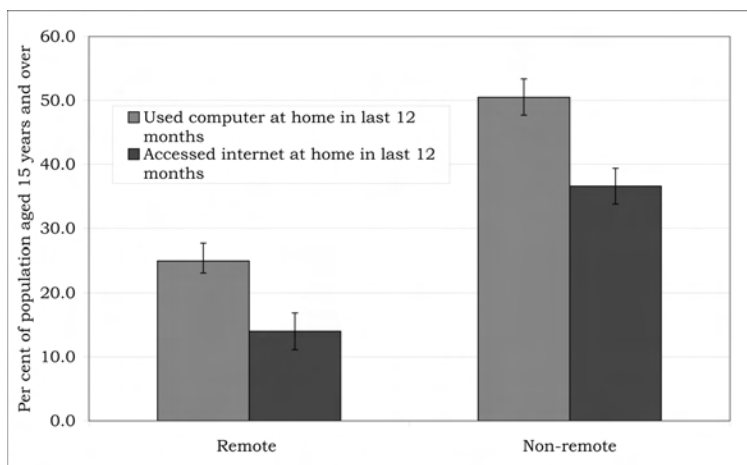
Source: ABS (2004: Table 7).

As we know from previous research, education—or at least the level of education—plays a role in ICT use. Fig. 16.3 highlights that Aboriginal and Torres Strait Islanders with low or no formally quantifiable educational qualifications were found to have lower use rates of ICT, whereas those with Year 12 and post-school qualifications have a higher rate of computer and internet use. These findings that education qualifications are a strong determinant of ICT use are not surprising, as Lloyd and Helwig (2000) also found that the level of education was a strong factor in determining computer use in Australia. Post-secondary education was found by Lloyd and Helwig to be the strongest determinate of computer use for the overall Australian population. However, post-Year 11 education is the most prominent determinate of computer use for the Indigenous community, with Year 12 and post-school qualifications making no significant difference. One point of interest from the data on internet use is that both Year 12 and post-school qualifications have the same rates of use,

suggesting that while computer use may increase (albeit nominally) as a person's educational qualifications increase, internet use may, in fact, stabilise.

While income and education do play a major role in determining ICT use for the Aboriginal and Torres Strait Islander population, other factors affecting ICT use have arisen from the NATSISS that I will go on to discuss. But firstly, it would be useful to examine the digital divide that exists between remote and non-remote Aboriginal and Torres Strait Islander communities.

Figure 16.4. Computer use and internet use by remoteness, 2002

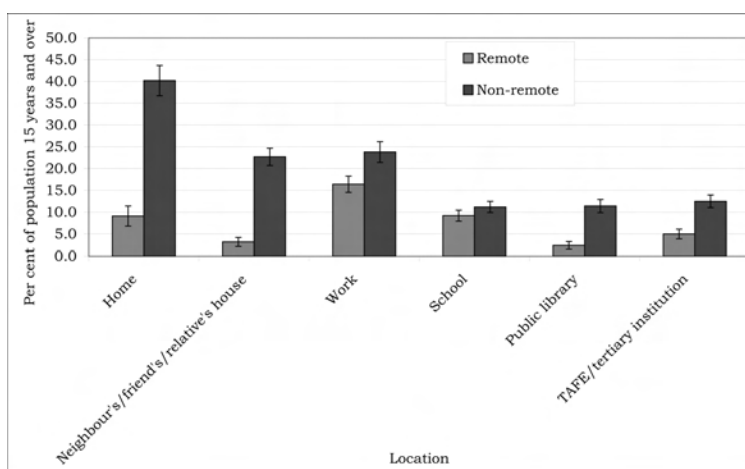


Source: ABS (2004: Table 5), persons aged 18 and over.

It has already been demonstrated that a significant digital divide exists between the Indigenous and non-Indigenous communities in Australia, and Figure 16.4 above highlights a significant digital divide between remote and non-remote Indigenous communities. Remote communities use computers and the internet less than half as much as their non-remote counterparts. There are many factors that point to why this may be and I will now examine the available data from the NATSISS to attempt to determine this.

Location

Figure 16.5. Computer use by location and remoteness, 2002



Source: ABS (2004: Table 22).

One important component of ICT use is the location at which you are able to use the technology. Figure 16.5 shows the locations that remote and non-remote communities use computers, with some interesting results.

All areas of computer use in the NATSISS are significantly different when comparing remote and non-remote computer use, with the exception being use in schools. This further highlights the digital divide between remote and non-remote Aboriginal and Torres Strait Islander communities and demonstrates the importance of schools in remote communities in bridging the digital divide.

There are three main computer access points for non-remote communities (see Fig. 16.5). These are in the home, at another person's home and at work. However, in remote communities the main access points are work, school and home. It is interesting that remote and non-remote communities are contrasting in the locations where computers are accessed. There is no one factor that indicates why this is the case; rather, there seems to be a number of factors that contribute to such low ICT use in remote communities overall.

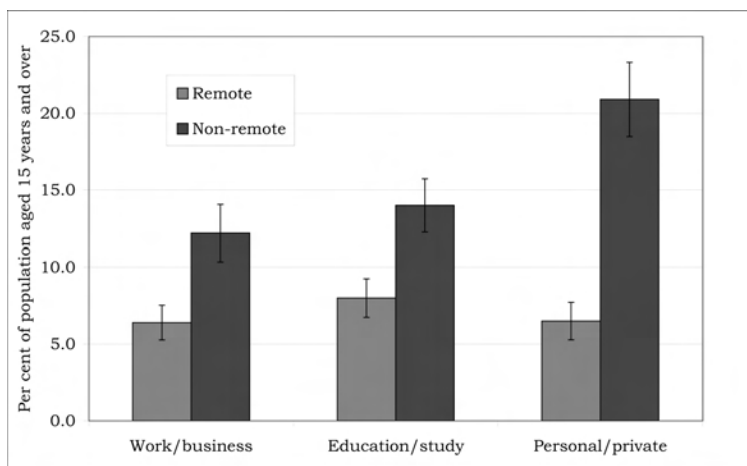
Before discussing the additional factors, we should first examine the issues associated with the above findings; in particular, the main access point to computers in remote communities being in the work place or at work. While digital divide literature would argue that any use of computers is bridging the digital divide, using computers at work only enables or permits use of, and access to, the technology mainly for work purposes and associated tasks. By this, I mean that using ICT provided by the employer in the workplace is often restricted. Examples of this are the various e-mail and internet 'appropriate use' policies utilised in all levels of the public service and other employing entities.

These 'appropriate use' policies are designed to address issues of security and productivity, both of which are vital to organisations. Using computers at work drastically inhibits other types of use; namely personal and private use.

Home use is one key to bridging the digital divide. NATSISS shows that home use of ICT lags well behind in remote communities, at 9.1 per cent, while in non-remote areas it is 40.2 per cent. It is interesting to note that use in schools in remote communities is 9.2 per cent which is not significantly different to home use in remote communities. Home access has many benefits over other types of access in that there are no restrictions on when, why, and what you access. In addition, by having a computer at home, you can install personal software and programs.

Purpose

Figure 16.6. Purpose of internet use by remoteness, 2002

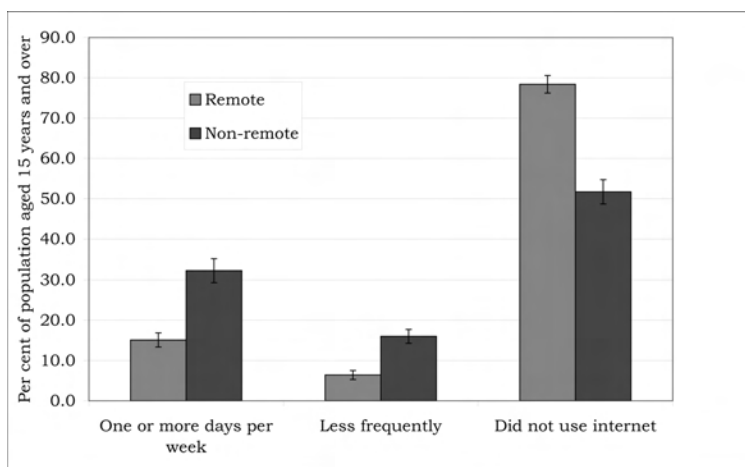


Source: ABS (2004: Table 22).

The purpose for using the internet in remote and non-remote Indigenous communities highlighted in Figure 16.6 shows that the level of internet access for specific purposes is also significantly different. Non-remote communities tend to use the internet for personal/private reasons. In remote communities, work/business, education/study and personal/private are the main reasons for accessing the internet, with no significant difference between the three purposes.

Frequency

Figure 16.7. Frequency of internet use by remoteness, 2002



Source: ABS (2004: Table 22).

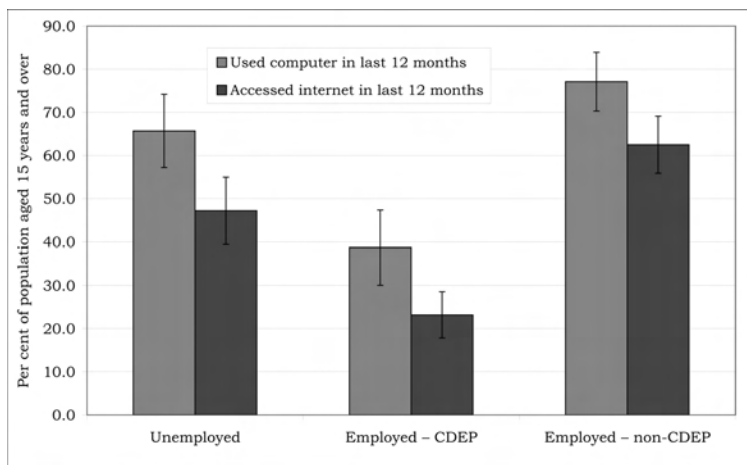
As we have seen previously in the definition of the digital divide, an individual's skill set is a sub-component of the digital divide. While we do not have data on the time individuals spend online, we do have data on the frequency of internet use. Therefore, examining the rates or usage would also be a further indicator as to which segment of the Indigenous population suffers from the digital divide. Figure 16.7 clearly shows that internet usage rates are very low overall, demonstrated by two different sets of data. Firstly, 78.4 per cent of Indigenous people in remote communities did not access the internet at all compared with 51.7 per cent of non-remote Indigenous people. Secondly, 32.3 per cent of non-remote Indigenous communities accessed the internet one or more days per week compared with only 15.1 per cent in remote Indigenous communities.

Other inhibitors of ICT use

As we know, Fink and Kenny (2003) define the digital divide as both infrastructure access and individual capabilities. It would be ideal to have data that demonstrate—or at least go some way towards understanding—the depth of the digital divide in Aboriginal and Torres Strait Islander communities. Unfortunately, only a few statistics were collected on ICT use in the NATSISS, leaving many aspects of the digital divide unable to be examined. Therefore, we cannot speculate too much on an individual's ICT skill set, nor can we gauge whether the Indigenous community derives any economic advantage by using ICT as outlined by Fink and Kenny (2003), because that data is simply not available. What we can discuss further is the additional inhibitors to ICT that have come out of the NATSISS that impact on Aboriginal and Torres Strait Islander communities.

Employment

Figure 16.8. Information and Communication Technology use by employment status, 2002

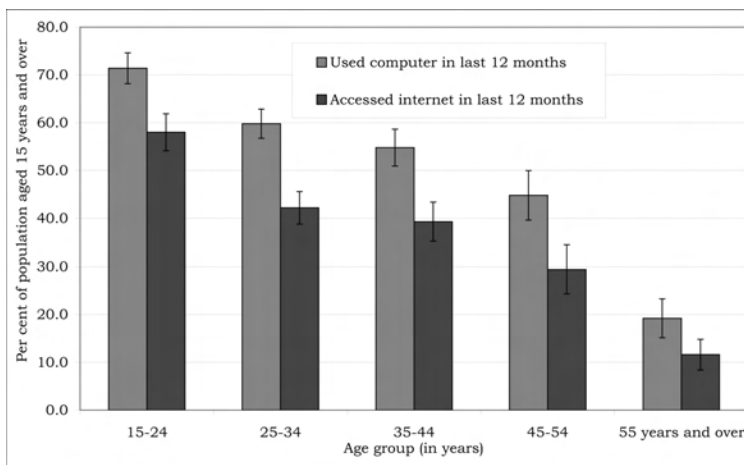


Source: ABS (2004: Table 8).

Employment status and the type of employment have an impact on ICT use. Being employed makes Aboriginal and Torres Strait Islanders significantly more likely to use a computer and access the internet; this may be closely correlated with income. However, what is striking is that being on the CDEP scheme makes you less likely to use computers and the internet than those who are unemployed. Moreover, only 38.7 per cent of those employed under the CDEP used computers, whereas 65.7 per cent of the unemployed used a computer. Similarly, 23.2 per cent of CDEP participants accessed the internet compared with 47.2 per cent of the unemployed participants. While this might be surprising to some, it really should not come as a great surprise as there has been research suggesting that CDEP is not an effective program for employment opportunities (Langton 2002). Also, the data presented here further demonstrate that CDEP programs perpetuate the digital divide. It should be noted that those on unemployment benefits are required to seek employment opportunities, and ICT is usually provided by job search agencies for this purpose.

Age

Figure 16.9. Information and Communication Technology use by age, 2002

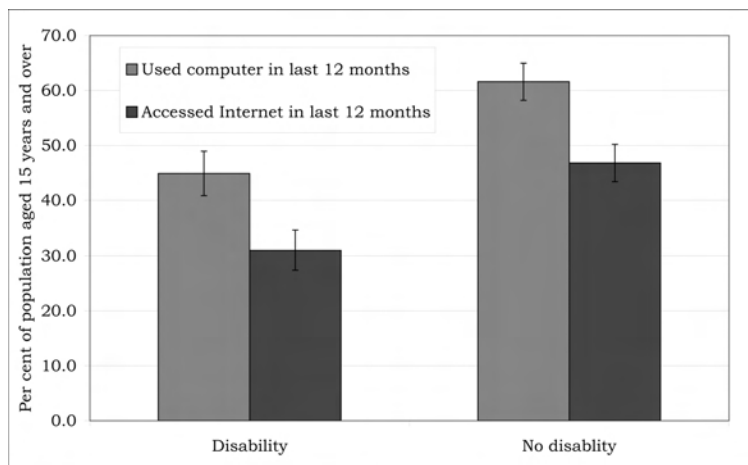


Source: ABS (2004: Table 3).

We have seen previously (see Fig. 16.2 and Fig. 16.3) that higher incomes and higher education rates lead to higher ICT use. Therefore, you would expect that ICT use would be predominantly an older age group activity. However, this is simply not the case. Surprisingly, the youngest age group has the highest ICT use. This may demonstrate that age could play an equal role along with income and education in determining ICT use, or it may in fact show that education is the stronger determinant rather than income and the fact that income and education are correlated may only be coincidental. This discrepancy between age groups could also be partly explained by the ‘digital natives—digital immigrants’ concept. This theory asserts that technology is more accepted the earlier it is introduced to a person (‘digital natives’), while there is some resistance if the technology is introduced later in life (‘digital immigrants’) (Prensky 2001).

Health status

Figure 16.10. Information and Communication Technology use by health status, 2002

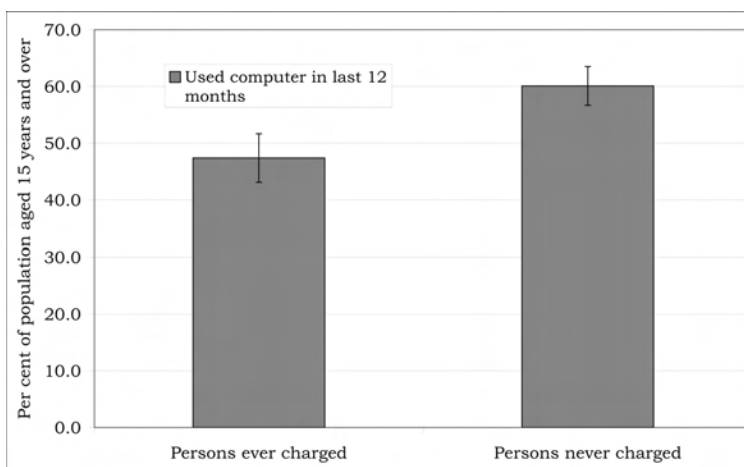


Source: ABS (2004: Table 10).

Health of an individual plays a significant role in the use of ICT. It is well known that the overall health of the Aboriginal and Torres Strait Islander community is lower than that of the non-Indigenous population. However, just because you have a disability or ailing health does not exclude you from your citizenship responsibilities. Neither should your condition exclude you from the digital era, but it quite obviously does. Of those with no disability, 61.6 per cent used computers compared to 44.9 per cent of those with disabilities. Once again, internet access is similar, with 46.8 per cent of those with no disabilities having accessed the internet and only 31 per cent of those with a disability having accessed the internet in the same period. This leaves those with disabilities and poor health suffering a digital divide.

Justice system

Figure 16.11. Computer use by whether ever charged, 2002

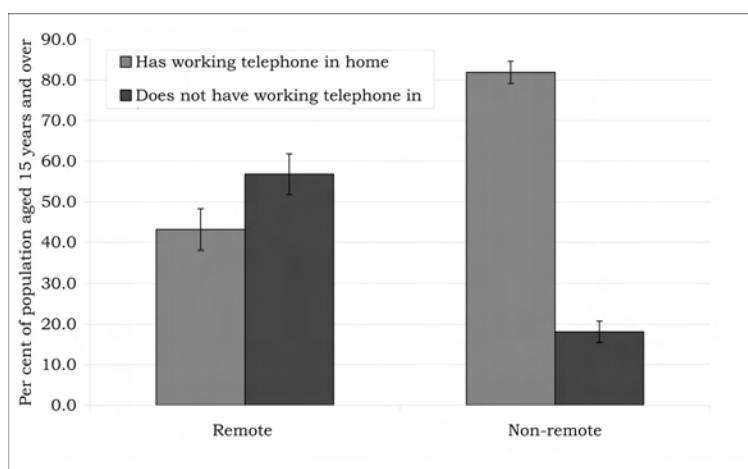


Source: ABS (2004: Table 11).

Being charged appears to have an effect on ICT use, with a significant difference in computer use between people having been charged and people who have never been charged represented by 47.4 per cent and 60.1 per cent respectively. This may also be closely correlated with education and income. Unfortunately, internet access data were not available for charged and non-charged people but we can assume that the percentage of internet access for people 'ever' charged would also be significantly different from the percentage of people 'never' charged.

Telephone status

Figure 16.12. Telephone status by remoteness, 2002

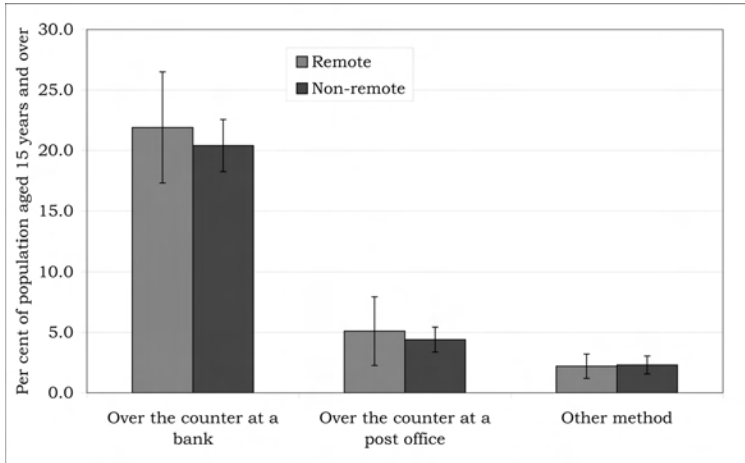


Source: ABS (2004: Table 22).

Unlike computer use—where only electricity is required to use the technology—internet access relies on other infrastructure for connectivity, namely a telephone line, whether it is for a dial-up service or for broadband services (excluding direct satellite-based technologies). The NATSISS has highlighted a significant internet barrier for remote communities, namely the connection point. Only 43.2 per cent of the remote homes surveyed had a working telephone, which is approximately half that of the non-remote population at 81.9 per cent. This suggests that the potential to have the internet connected at home in non-remote communities is higher than that of remote communities, which may be an indicator of low internet use.

Accessing money

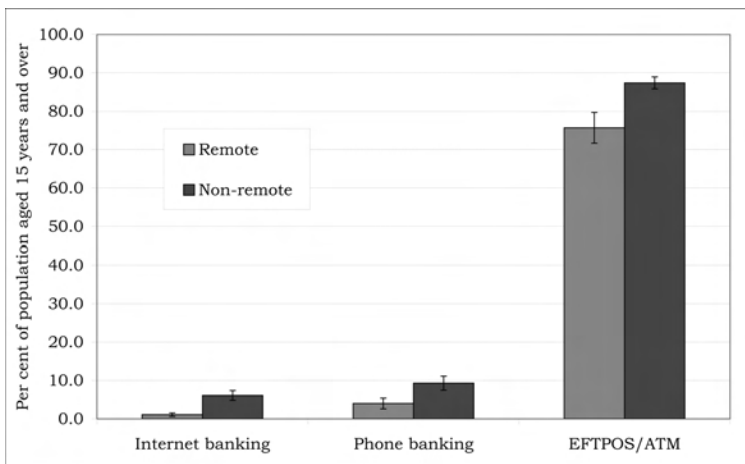
Figure 16.13. Money access mode by remoteness, 2002



Source: ABS (2004: Table 18).

Accessing money is one of the data items collected in the NATSISS. This provides an opportunity to examine how Aboriginal and Torres Strait Islanders access their money and to see if more modern technologies are being used by this segment of the Australian community. The NATSISS data highlighted that more conventional methods of accessing money—like face-to-face—are relatively low (see Fig. 16.13) but nevertheless there was no significant difference in using these modes between remote and non-remote Indigenous communities.

Figure 16.14. Electronic money access by remoteness, 2002



Source: ABS (2004: Table 18).

In contrast to Figure 16.13, Figure 16.14 shows that some electronic forms of money access have become quite popular in both remote and non-remote

communities. EFTPOS and ATMs were the most used of the electronic technologies, with 75.7 per cent of people living in remote communities using this mode compared with 87.4 per cent of people in non-remote communities—a significant difference. Phone banking was the next most popular method of electronic money access, leaving internet banking the least popular method of accessing money. Only 6.1 per cent of people in non-remote communities and just 1.1 per cent of people in remote communities were making use of this mode.

Conclusion

We have seen that there is a significant digital divide between the Indigenous and non-Indigenous community, and the NATSISS has provided data showing that there is a significant digital divide between remote and non-remote Indigenous Australia as well. While there are many aspects of ICT use collected in the NATSISS, there are other aspects of the digital divide that have not been collected; namely, a user's skills set, the number of hours an individual spends online and the economic benefit derived from ICT. This is a weakness of the NATSISS data.

There is no doubt that, given such low ICT use rates and the fact that numerous inhibitors to ICT use are faced by the Aboriginal and Torres Strait Islander community, targeted policy is required to overcome the digital divide. However, the complexities of ICT use inhibitors (namely, low incomes, low education, being charged in the justice system, poor health and being on CDEP) suggest that policy targeting these key areas will not see the digital divide being bridged.

It must be stated that while remote Indigenous communities are in most need of ICT, the Indigenous community as a whole lags well behind the rest of Australia in ICT use and any Australian ICT policy should target Indigenous communities as a whole.

To conclude, it is worth noting that the above discussion focuses on the bi-variate analysis of the relationships of various socioeconomic factors to ICT issues. While a multi-variate analysis of the factors underlying ICT use might eliminate some of the duplication arising from the correlation between these factors, this is left for future research. This chapter has provided one of the first overviews of ICT issues in the Indigenous community, providing a first step towards a more structured empirical analysis that might include a multi-variate modelling exercise.