At Home on the Outstation: Barriers to home internet in remote Indigenous communities

Ellie Rennie, Andrew Crouch, Alyson Wright, Julian Thomas

Abstract

Indigenous Australians living in remote areas have little access to the internet and make little use of it. This article investigates the various dimensions of internet take-up in remote Indigenous communities in Australia and considers the implications for broadband policy. It focuses specifically on the circumstances and experiences of three remote Indigenous communities in central Australia. Residents in these communities provided significant insight into the social, economic and cultural aspects of communications access and use. This evidence is used to examine the drivers and barriers to home internet for remote Indigenous communities and to discuss a complex set of issues, including: the dynamics of remote living, economic priorities, cultural engagement with technology, and the characteristics of domestic life in remote Indigenous communities.

Keywords

Indigenous Australia; remote Indigenous communities; broadband policy; internet take-up

Introduction

The 2006 census statistics revealed that 20% of Indigenous households in remote and very remote Australia had internet- connection in 2006, compared with 60% of non-Indigenous households in the same statistical area (ABS 2006). As the comparison with non-Indigenous households suggests, the low level of take-up is not simply a matter of availability, but the result of many social, cultural and economic factors. This article investigates the various dimensions of internet take-up in remote Indigenous communities and considers the implications for broadband policy.

We focus specifically on small Indigenous communities, otherwise known as outstations, in the central Australia region. Broadband policy for remote Indigenous communities has so far been directed at larger communities and is based upon the development of shared facilities. This approach raises a number of questions: What are the prospects for internet take-up in small communities? More specifically, if we consider the prospect of "home internet" — the norm for private access in the rest of Australia. What might that mean for these small, dispersed clusters of households? Household access to the internet is potentially important not because it is a substitute for good community facilities, such as those in schools or arts centres, but because it offers opportunities and freedoms denied to users of shared facilities: privacy; flexibility with time; and the chance to observe and share the experience with family members.

At a time when the sustainability of outstations is attracting serious public scrutiny, broadband is being presented as an opportunity to overcome substantial obstacles related to regional and remote service provision. A key motivation for the Australian Government's multi-billion dollar investment in the National Broadband Network (NBN) is to facilitate the digital delivery of government and public services, including health and education, to all Australians (Conroy 2011). The government aims to connect 93 per cent of Australian homes, schools and businesses with fibre to the premises technology providing broadband speeds of up to 100 megabits per second. All remaining premises will be served by a combination of next-generation fixed wireless (4% of homes) and satellite technologies providing peak speeds of at least 12

megabits per second (3% of homes). Many remote Indigenous communities are outside the anticipated NBN fibre footprint and also outside the NBN wireless footprint. The improved satellite service is likely to be the only option for internet access for many remote Indigenous communities.

Although better broadband infrastructure is desirable from a consumer perspective, it may have little impact if other factors are influencing take-up. In this article we give a brief account of the outstation movement and the debates related to these settlements. We then look at the extent of home internet access in relation to the particular needs of outstation residents. Using the results of our baseline study[1] conducted in 2010-2011 (Rennie et al. 2011), we discuss three issues that work together to complicate internet adoption and use: access, affordability and the home.

1.   Outstations and Priority Towns

There are 1187 discrete Indigenous communities across Australia. Of these, 865 (73%) have a population below 50 and 987 (83%) have a population below 100 people. The average size of those with populations under 100 is 20 people. The majority of these small communities are located in remote or very remote Australia, with the highest concentration of small remote Indigenous communities being found in the Northern Territory (NT), Western Australia and Queensland. In the NT, the number of people living in small remote Indigenous communities is approximately 10,000 or 25% of the total Aboriginal population in all NT communities (ABS 2006). Just over a third of the Aboriginal population in the Northern Territory live in small and medium size communities. Outstations are therefore a significant portion of all Indigenous communities.

Many of these communities were founded as part of the "outstation movement". Families began returning to their ancestral lands in the 1970s in order to

maintain traditional sites. Others moved to outstations to avoid political marginalisation in the larger missions and settlements, where the artificial collocation of diverse groups had resulted in significant stresses for those that were not traditional owners. As time progressed, outstations also had the appeal of being removed from the social problems of larger settlements, such as alcohol and violence (Blanchard 1987, Altman 2006b). The viability and value of outstations has been much debated in recent years. While some reports have suggested that outstations provide a healthier alternative to larger remote communities, (Kerins 2010; Rowley et al. 2008; 2000; Smith & Claudie 2003) others have argued that the 1970s policies of self-determination have failed, resulting in generational social problems, including poor life expectancy, education standards and substance abuse (Sutton 2009). Defenders of the outstation movement have been accused of propagating a romantic ideal of traditional Aboriginal culture and ignoring the considerable hardships families face in these places.

One of the central questions of this debate is whether government funding – required to maintain dwellings, infrastructure and services – is justified given the poor living standards that persist in many communities. Outstations undoubtedly present an enormous challenge for policy-makers in terms of housing, services and employment opportunities. Most recently, there has been a policy shift away from supporting small communities and outstations towards a focus on larger Indigenous communities. This is particularly evident in recent government initiatives to develop infrastructure and services in what they name 'priority communities' or 'growth towns'. All of these have populations of 300 or more.

Communities that are not priority towns are funded for specific services such as local government municipal services, health clinics, schools, and police stations. Outstations also receive general-purpose infrastructure and service funding through a network of agencies. But under the new policy framework, funding – including funding for ICT centres and training – is being distributed to larger communities without additional support for smaller communities. The justification for this approach is that the transport links between the 'hub' target

towns and the smaller communities around them will be upgraded, with a view to encouraging and assisting residents of these smaller communities to use the hub services.

Communications policy is a constant presence in debates over the viability of Indigenous communities. On the one hand, telecommunications and broadband are described in terms of their absence, quantifiable by statistics and comparisons with mainstream take-up. These statistics present a picture of "haves" and "have nots" (Tangentyere Council & Central Land Council, 2007). Statistics alone, however, tell us little about whether the situation is one of straightforward market failure, or whether this population is, in fact, choosing not to access and use the internet for other reasons. As Rowse points out, quantitative analysis of Indigenous exclusion can render Indigenous sociality invisible (Rowse 2010, 177)

Discourses of digital divide and social exclusion sit alongside another narrative that portrays digital communication as a means of cultural empowerment (Thorner 2010; Kral 2010). This strand of work sees participation in digital technology as a means to maintain culture and enhance lives through creative engagement, even while in real terms the level of participation is low compared with the mainstream population.

In the policy realm there has been surprisingly little said about the possibilities of communication technologies for remote service provision and social connection. If the core problem of remote Australia is the "either or" between culture and social inclusion, or diversity and social cohesiveness, then broadband is one policy strategy where the two aspirations appear to coexist. Broadband offers opportunities for community archives, documentary, language preservation, stories, and young people's creative expression. It also offers the chance to connect dispersed populations to services such as hospitals, financial management, enterprise development, online purchases and emergency assistance. It is also a 'complementary technology', in the sense that it will enhance the value of smart phones that may already be owned by a small number of residents, and build on the ICT facilities already present in schools

and towns. None of this will be realised, however, while internet take-up remains so low.

If outstations are to benefit from the National Broadband Network, then it appears that private access to the internet, whether within the home or through Wi-Fi connected mobile devices, will be central.

2.   Method

Our research took place over a six-month period and involved introductory meetings to discuss the project, two field trips to each community for interviews and group discussions, as well as post-fieldwork visits to confirm results. Methods included interviews, community meetings, mapping, and community engagement techniques. We approached data collection as a household study, in that we mapped household residents and relationships to gauge household structures and size.

Some of the findings in relation to barriers and needs were ascertained through direct questioning, while others arose out of discussions and information related to broader social, environmental and economic concerns. However, all barriers and needs, including those that emerged through analysis rather than interviews, were raised and discussed with the communities during the second fieldtrip. Only issues that the communities confirmed to be barriers and needs are included here.

2.1.   Communities and participants

The three communities in this study, Mungalawurru, Kwale Kwale and Imangara, are all considered to be small remote Indigenous communities, or outstations (see map below). Kwale Kwale is a small family outstation (12-15 permanent residents), approximately 40 kilometres west of Alice Springs. Imangara, the largest community in this study (90-100 residents), is 207 kilometres southeast

of Tennant Creek. The Mungalawurru community (22 permanent residents) is 80 kilometres northwest of Tennant Creek. All of the residents of each community identify as Aboriginal people from central Australia, and most speak their traditional language as their first language.
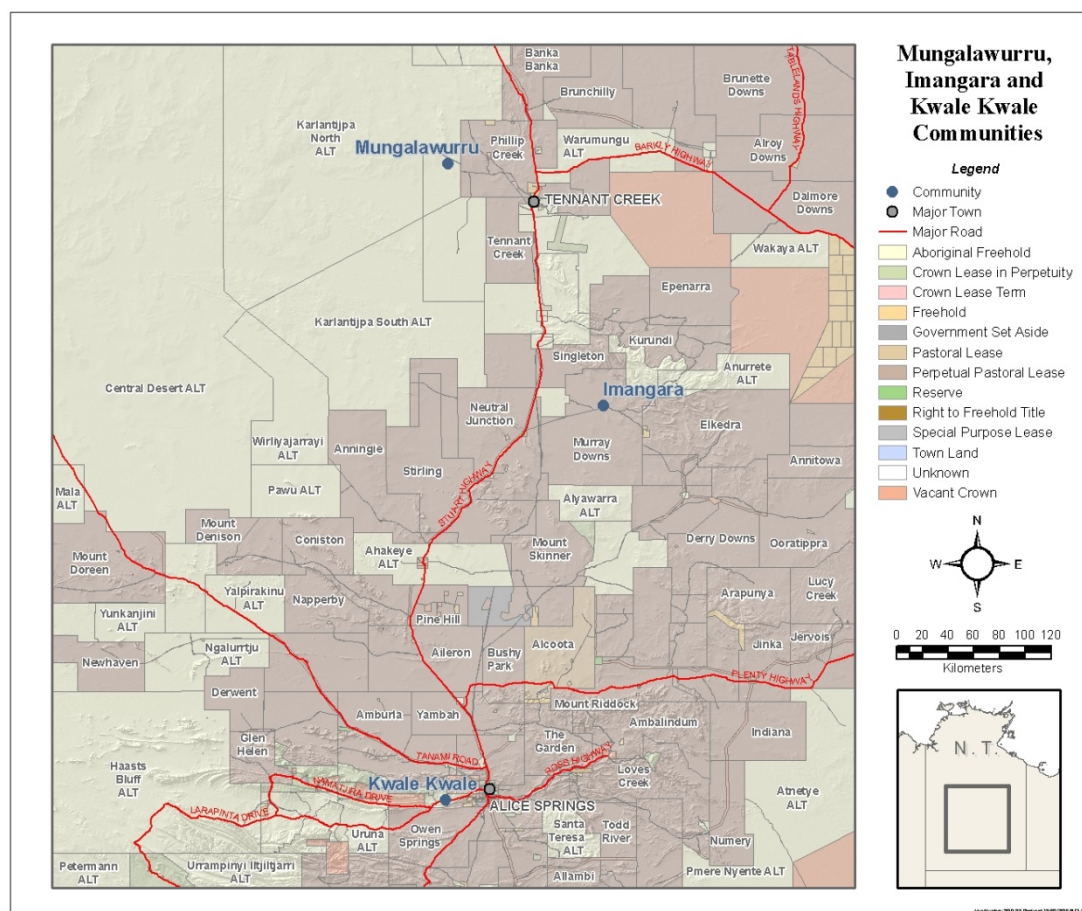
Figure 1: Map of the three communities (fieldwork sites)

Over the course of the project we interviewed 48 individuals (54% of the total number of adult residents) and attempted to interview people from as many different households as possible. We only interviewed a handful of children (with guardian consent and supervision), primarily to confirm the extent to which children were using computers at school. Of the total interviewees, the largest percentage (34%) was in the 18-30 age-bracket.

We interviewed 27 women (including two girls aged 10-18) and 21 men (including three boys aged 10-18). The gender imbalance reflects the fact that a number of young men were unavailable for interviews during our visits, as well

as there having been two female researchers and only one male researcher on the first field trip when the majority of interviews took place.

In terms of education levels, two thirds of adult participants had attended secondary school and a quarter had only received a primary education. Three participants (out of a total of 43 adults) had a tertiary qualification.

Although our research captured a relatively small group of Aboriginal people, these three communities can be seen as typical for the vast majority of remote Indigenous communities in size and access to services:
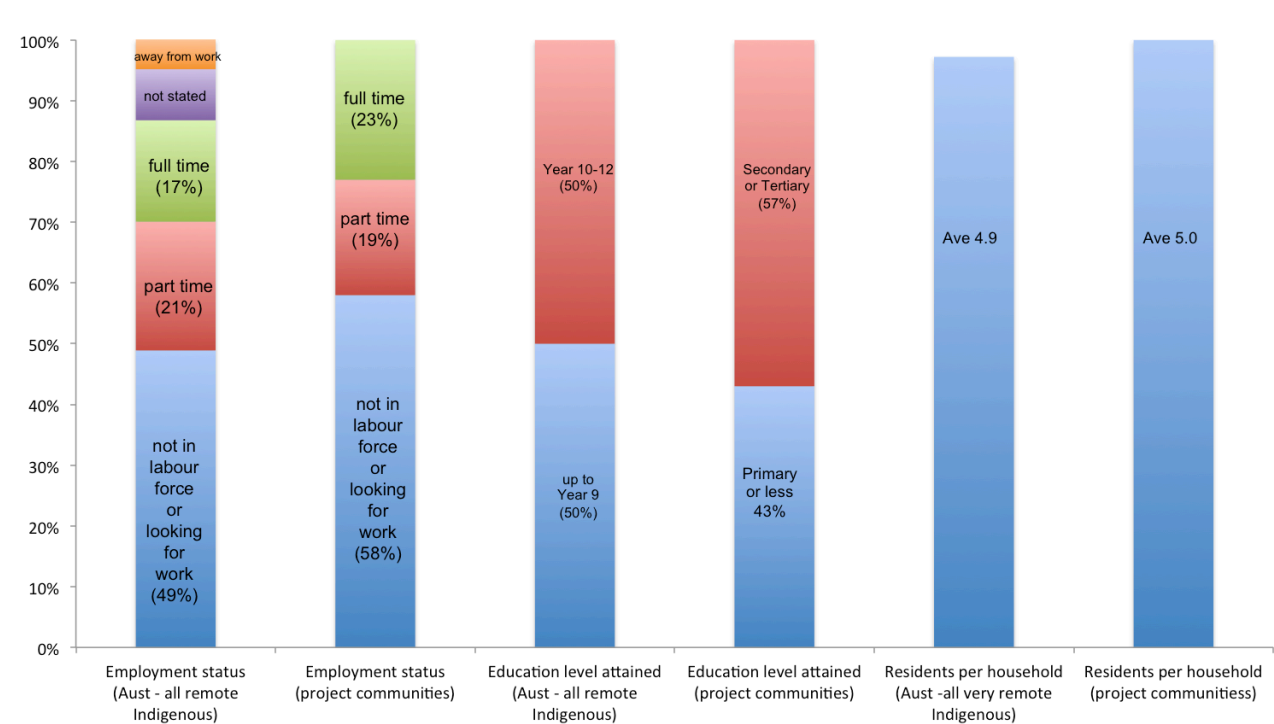
Figure 2: Comparison of national average Indigenous social statistics with the 3 project communities (Source: ABS 4704.0 2008, 4713.0 2006; interviews with residents of Imangara, Kwale Kwale, Mungalawurru August-November 2010)

As the table shows, employment, education and household numbers in the three communities are close to the national averages for remote communities. The left two columns, indicating the employment status, display that 58% of the people we interviewed were not in the labour force. This number is slightly higher than the 49% of people unemployed across all remote communities in Australia. The middle columns show that the number of people with secondary or tertiary

education was 57% compared with 50% for remote Indigenous communities Australia-wide. The two columns on the right show that the average number of residents per household is roughly in line with the national average.

3.   Current computer and internet use

Very few households in these outstations have access to the internet. Only 6 participants owned a computer at the time of the study (approximately 10% of total adult participants) and only one of these computers was connected to the internet.

The one individual in our study that had home internet access had discovered he could get tolerable mobile internet access using a USB mobile broadband 'stick' modem, which was attached to a pole on his roof and connected to his computer via a cable. Another computer owner did not realise that he could connect his laptop to the internet when in Tennant Creek, believing that the internet connection only worked interstate, where the laptop had been purchased by his sister. He did, however, access the internet on his mobile phone when in town.

In terms of general computer use, others who had never owned a computer had gained some limited experience elsewhere, with over one third of the participants having used more than one computer application. Of the 58% (28) who had used a computer, 18 said they had accessed the computer at school, 6 had accessed the computer at home, 5 at a telecentre, 4 at work, and one each at Congress, the library and a rehabilitation facility. Only 9 participants had accessed computers from more than one site.

Only two third of those who had used a computer had also used the internet. In addition, 10% of all participants had accessed the internet from a mobile phone (mostly for downloading music and games). One person had accessed the internet on a mobile phone but never from a computer. Three quarters of Internet users were aged 30 or under. Those in the 30-45 age bracket were most likely to have used a computer but not the internet (Figure 3).
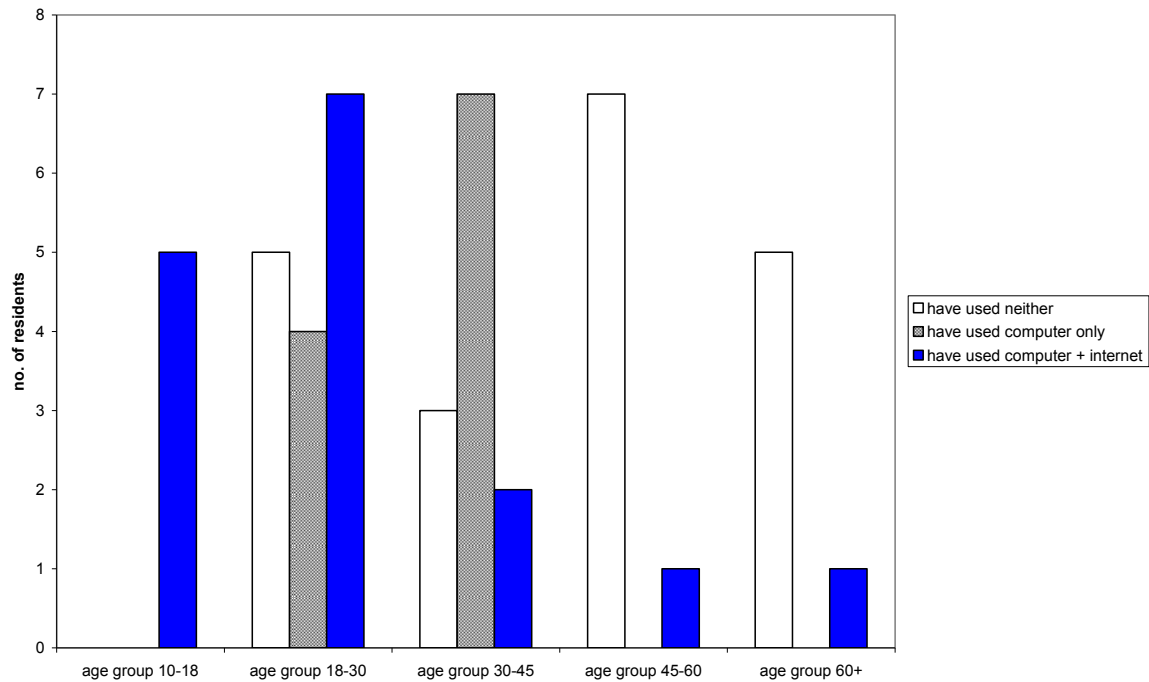
Figure 3: Residents use of computers & internet by age group (Source: Interviews with residents of Imangara, Kwale Kwale, Mungalawurru August-November 2010)

By comparison, findings from the World Internet Project found that eight out of ten Australians said that they currently used the internet, up from 72.6% in 2007[2]. The study also found that only 13.5% of people had never used the internet (just under 20% in 2007), while the proportion of people who had used the internet in the past but had stopped using it had also fallen (Ewing et al 2010, 1). Accessing the internet through a mobile device had "increased from around a quarter to more than a third (35%) of all internet users" (8).

The low rates of take-up amongst remote Indigenous households are not strictly a matter of availability. Even though all communities have no fibre or ADSL, satellite broadband is nonetheless available to households at reduced cost. At the time of the study, the Australian Government's Australian Broadband Guarantee (ABG) scheme was subsidising the provision of a 'threshold' 1Mbps satellite broadband service, by meeting the full cost of premises hardware and installation. The customer was required to meet the recurrent usage cost, which was capped at about $70 per month. The NBN Interim Satellite Service replaced this scheme in July 2011 (the new scheme is similar to the ABG except that the

---

[2] This telephone survey uses a random sample of 1000 Australians.

satellite equipment and installation are now provided by NBN Co). However, the residents interviewed in this study did not know that satellite broadband was available, or that the Australian Government was offering to subsidise the cost of internet for remote households (this issue is examined in detail in [REMOVED]).

3.1. Uses and skills

Amongst those who had accessed the internet, the main uses were for search ("Google"), internet banking, storing/finding photos and watching video clips. Less popular uses included email, shopping and downloading music.

Approximately 60% of those who used a computer considered themselves to be good at it. Many thought that learning how to use a computer was "hard at first", but having some experience generally meant that they didn't fear learning as much as those with no experience. Some participants stated that they had figured out how to use computers on their own, or that it was possible to become more proficient through trial and error.

One third of those without a computer said either they didn't know how to use it (21%) or had never considered getting one (12%). This last group generally had very little knowledge of what a computer could be used for and some older people asked us to explain what we meant by the words "computer", "laptop" and "internet". Overall, it was difficult to ascertain whether training or particular uses were of interest to these participants and substantial prompting by the researchers may have skewed what answers we did receive. The uses that attracted the most interest when explained included internet banking, downloading music, and viewing videos and photos.

Participants who had no experience of computers generally perceived it to be difficult to learn. However, one man reflected that when he had seen other people using computers he was "surprised how well they do it, so it can't be that hard". The lack of support services, for instance online help and face-to-face

training, is a significant barrier for those who have not received computer training at school or work.

All three communities rated difficulties with reading[3] the English language as the third most significant barrier to computer use. The majority of residents spoke their local language at home and a quarter spoke more than 2 languages (including English). As one woman commented, "the issue is that English is a written word but my language is spoken".

4.   Drivers for Take-Up

4.1.   Children and the internet

We did not undertake a full study of children and the internet. However, we did find that children are a significant group of users and that adults do consider children when discussing the benefits and obstacles of having a computer at home. Of the small number of children we interviewed, as well as young adults who had recently left the education system, all had some experience with computers at school, confirming schools as one of the most important points of access for people living in remote communities. The primary school at Imangara for instance, is equipped with 9 computers, which are located in the main classroom. The school had also run adult computer training (some years ago), which was the only experience with the internet for some members of that community. Adults who had worked as teacher's aides in all three communities had accessed the internet at the school in the past. The elders in Imangara asserted that they would like to know how to use computers so that they could know what children were using them for. However, young adults who had used computers at school did not necessarily continue to use computers after they had

---

[3] Aboriginal languages historically had no written form, although writing systems were developed following european settlement

left school or in any other context. School was the only site of access for 40% of computer users.

We found that although schools are an important site for internet access and digital literacy skills development, computer use by young people is not necessarily leading to computer adoption and use amongst older people who are not directly connected to the school. One explanation is that children are unlikely to teach others how to use computers due to cultural protocols. We are currently undertaking further research that will provide deeper insight into patterns of skills transfer.

The lack of computers in homes may have direct implications for the children themselves. By comparison, almost all other Australian children over the age of 12 are accessing the internet from home; in fact they are accessing the internet more from home than from school (see ABS 2009. Similar findings are emerging from Sonia Livingstone's EU Kids Online project. See Livingstone 2011). While it is significant that children in remote communities are gaining experience of internet and computers at school, further research is required to determine whether school access is sufficient or whether home access can improve children's overall educational outcomes. For instance, findings of a 2002 US Study into the influence of home Internet use on the academic performance of low-income children indicated that: "Having a home computer has been associated with higher test scores in reading, even after controlling for family income and other factors related to reading test scores" (Jackson et al, 2006, 430).

When we asked participants how computers might be helpful, a handful of adults responded that it would be good for their children's education, or engaging young people more generally. This was confirmed in our follow-up consultations, when "kids' schooling" was rated as first or second on a list of priority needs.

The level of concern for cyber-safety amongst parents and guardians was low and difficult to gauge. However, we found that adults were more concerned about addiction to games and time-wasting behaviour than about what kids might access online. Children were considered a pest when it came to media

13

devices, especially as they "get upset when they don't get to use it" or fight over it. For instance, participants spoke of kids bugging adults to play games on mobile phones. Adults also told us that they locked away their games console and would do the same with a computer if they had one. A smaller number of people responded that children should nonetheless be allowed on computers because they can teach others.

In contrast, a report commissioned by the Australian Media and Communications Authority (ACMA) found that 71% of Australian parents "were concerned about cyber-safety, with 32% of this group reporting that they were 'very concerned'" (ACMA 2010, 6). It is worth noting that most Australian parents regularly use the internet (88%) and access the internet from home at least several times a week (81%), whereas adults in our project communities were only 53% likely to have used a computer and only 6% of residents owned a computer of their own. It is possible that these adults' limited use of computers reflects their lack of knowledge, or concern for, cyber-safety.

4.2. Access to information and telecommunications availability

Getting access to information proved to be difficult for residents of all three communities. When asked "how would you find out information such as the weather, road conditions or football scores?" common responses were television (where available and not necessarily their own) and word of mouth. A number of people responded that they would use the telephone, but this was far from straightforward.

Existing telecommunications facilities and services in Indigenous communities and outstations are determined to a significant extent by the Universal Service Obligation (USO) provisions of the Telecommunications (Consumer Protection and Service Standards) Act 1999 (TCPSS Act). Specific regulations stemming from this Act relating to the provision of public payphones to Indigenous communities require the availability of at least one payphone for a community of

50 or more permanent residents[4]. For the past nine years, targeted Australian Government funding has been providing payphone services through several consecutive 'Community Phones' programs to larger communities and outstations to supplement the USO services, in some cases utilising satellite technology. Earlier telecommunications programs provided some phones to larger communities but the Indigenous Communication Program (ICP) targets its Community Telephones element to remote Indigenous communities with a population of less than 50 people, including children, that are occupied for more than 6 months of the year. Phones provided under the ICP use satellite technology – whether fixed telephones for larger communities or mobile satellite handsets for smaller, more transient, communities (generally less than 10 people).

Out of the three communities that took part in this study, only 2 homes had active telephone lines, both in the same community (Kwale Kwale), and both in the homes of older people. One of these phones had restrictions on it; they could receive calls but could not make any charged calls, except by using a pre-paid phone card. Both phones were initially installed to enable contact with medical services. Imangara and Mungalawurru both had a single public payphone in an outdoor cabinet. The distance to houses at the other end of the community was up to 400 metres. Three older people in Imangara expressed a desire for a home telephone: "[We] would like telephones. The one here breaks a lot. I need a phone to ring family and friends in other places." The older residents had limited knowledge of what services they were entitled to, or what was available for purchase. When asked how they would go about getting a telephone, none were able to provide a straightforward answer. One woman said she didn't have a home phone because she "hadn't been given one". Others said they would contact the council in the first instance (rather than a telecommunications

---

[4] Under Division 5, Subdivision C of the TCPSS Act, Telstra is required to prepare a policy statement and Standard Marketing Plan (SMP), which states how Telstra will meet its requirements as the primary universal service provider to meet universal service obligations including the provision of payphones in Australia, and telecommunication services in remote Indigenous communities. Under the SMP, Telstra states it will supply one or more payphones in small, remote communities, including Indigenous outstations, where, as a general rule, there is a permanent population of more than 20 adult residents, or 50 people in total.

company). The elders in Imangara said that they would like at least a public phone for each cluster of houses (camp) as it was too far to get to the telephone if someone was calling.

Like most small remote Indigenous communities, none of the communities had mobile cellular coverage. At the time when the study took place, mobile phone (3G) coverage for Indigenous residents of central Australia was limited to about 7000 people in seven discrete locations (only about 50% of the total population). A number of participants had purchased mobiles for use when visiting towns (approximately 30% of the people we spoke to). Some mobiles had been given to school-aged relatives who were staying in town so the children could ring the community payphone when they needed to contact home. A third of mobile owners were aware of, or using, their mobile for internet access – mostly music downloads or chat. When the public telephone is out-of-order (which occurs frequently), residents of Mungalawurru will drive 20 minutes down the road to a high point where, on some phones, they can get mobile phone reception. Imangara residents can pick up mail from the station or the nearby larger community of Ali Curung, which arrives via mail plane once a week. Mungalawurru and Kwale Kwale residents must pick up their mail from the post office in town (Tennant Creek and Alice Springs respectively).

Television, including playing DVDs on a TV set, was by far the most popular media platform across all three communities. Kwale Kwale receives adequate free to air television reception from the transmitters in Alice Springs. Imangara receives five free-to-air television services as part of the Indigenous Broadcasting Program, via a Remote Indigenous Broadcasting Service unit (satellite reception dish and terrestrial analogue retransmission facility). Mungalawurru has no free-to-air television service. However, one house at the community receives an Austar satellite TV subscription service. When analogue television is switched off in 2013, the residents of Imangara and Kwale Kwale will be eligible to apply for subsidised satellite receiver equipment to receive the free VAST satellite service. The residents of Mungalawurru will not be eligible for subsidised satellite television reception equipment as they currently do not have television transmission. At the time of writing, the only Indigenous television

services on the VAST platform is the Indigenous-owned Imparja service, which mostly carries content from a commercial network. Radio was far less popular than television, with only one third of participants identifying themselves as radio listeners. Those who did tune in did so in the car rather than at home. Only people over 30 listened to radio, with CAAMA radio (8Kin FM, an Indigenous station broadcasting from Alice Springs) being the most popular station.

4.3. Other drivers for take-up

There were a few instances of enterprise, or potential enterprise, in the communities and some awareness that computers could be of assistance in furthering these opportunities. Mungalawurru residents were interested in using computers to keep a database of stock for their cattle business. An artist in the same community was interested in using the internet to liaise with the local arts organisation and to display her work. A few men and women who were involved in various paid cultural and educational activities at the other two communities said that they would like to document and self-publish cultural materials. The man who ran the youth respite service at Kwale Kwale suggested that he might use a computer to keep a database of youth trajectories, tracking outcomes across five different projects. Having a computer to keep track of CDEP [5] hours was identified as a priority need during community meetings across the three communities.

All communities confirmed that online entertainment, including games and downloading videos, would be desirable, with an even spread of interest except for the oldest age group (60+). We found there was significant interest in accessing sites such as ABC iView (catch-up television) as well as YouTube, possibly due to the limited availability of television services. Amongst those who are currently using computers off-line, games was the most popular activity. For

---

[5] The Community Development Employment Projects (CDEP) program is an Australian Government program that provides Indigenous people with work experience placements and training in remote communities.

some in this group, recreation in general (mostly games and music) was their sole experience of computers.

5.   Possible long-term barriers

5.1.   Money

'Money' was the main barrier to home internet in these communities; 43% of participants who did not have a computer said that money was the reason. Follow -up consultations, whereby individuals considered and rated a shortlist of barriers, confirmed money to be the most significant barrier in all three communities. This finding is significant as it stands in strong contrast to the mainstream population, where non-users say they simply have 'no interest' (41.5%), or cite 'lack of skills' (30.4%). Cost is not the primary reason why people decide not to use the internet amongst Australians generally (Ewing et al 2010, 5).

The issue with 'money' is complex. Billing and household economics play a role, as discussed below. Other factors that influence household economics include: higher than average number of dependents in remote communities and economic relationships across households, particularly in small communities. Combined, these issues make it difficult to compare household spending and priorities with those of the mainstream population.

Although we did not ask participants to disclose their income, high unemployment (compared to a national unemployment rate of 5.6%) across all three communities suggests that families are getting by on low incomes:

- Only 38% of non-school aged participants were involved in some form of employment or business enterprise, either full-time or part-time, including CDEP.
- 52% were unemployed (including those on benefits such as pensions).
- 10% of those we interviewed were still in school.

In-depth interviews revealed that income is mostly spent on food, rent and bills. There was a significant awareness of cost in relation to appliances and energy consumption. Power bills were a significant expense at around $50 a month (higher during winter). Importantly, residents were aware of their power usage and some were concerned that having a computer would significantly increase their power costs.

Other studies have also revealed cost to be a significant factor in mobile phone take-up. A 2007 study of mobile phone use by the Tangentyere Council and the Central Land Council, entitled "Ingerrekenhe Antirrkweme", found that participants on Centrelink benefits were spending on average 13.5% of their income on their mobile phone, and those on CDEP were spending 8.3% of their income on their mobile phone. On average, participants were spending $42 of their fortnightly income on their phone. These figures suggest that affordability of communications technology is also likely to be a significant issue for at least half of the residents of the three outstations.

5.2. Demand Sharing and the Home

For individuals living in remote communities, economic decision-making is often influenced by factors that most Australians do not experience, notably, the system of "demand sharing". Simply put, Aboriginal people may frequently give away resources in circumstances when non-Indigenous Australians would consider it wiser to hold on to that resource. Known colloquially as "humbugging", this form of exchange is said to have foundations in traditional lifestyle when sharing was a matter of survival in a situation of scarcity and unpredictable food supply. Today, demand sharing acts as a levelling mechanism, whereby those with more resources give to those with less when asked . The considered way in which this occurs can be described as a "calculus of reciprocity" (Schwab 19957).

When it comes to payment of bills and other expenses, typical methods of measuring household expenditure do not work (Smith 1991). Residents might seek contributions to bills quickly from a number of people who are not necessarily residents of that household. For instance, in a 1988 study of town campers, Rowse found that almost one third of people who contributed rent were neither officially responsible tenants nor even recorded members of households (Rowse1998, 60). Therefore, while household might refer to the physical dwelling, as Smith writes, "many Aboriginal households are compositionally complex and often characterised by a state of considerable flux in membership and by economic vulnerability" (16).

The government's strategy for broadband policy for mainstream Australia is firmly centred around the home as an economic unit, either as a family, share house, couple or single person household. However, the term "household" may not mean much more than simply the physical space when it comes to outstations. This has implications for how we understand home internet and the factors influencing take-up.

Housing conditions and occupancy vary within communities. For instance, the dynamics of demand sharing had a direct influence on home internet and computer use in one community where an older couple was obliged to provide shelter for relatives from two other houses. The couple was concerned that having a computer in the house would keep people indoors in an already crowded house, which they did not wish to encourage. Although the couple said there were too many people in their house, they discussed moving out themselves rather than deny shelter to family, which implied that they had an obligation that was difficult to refuse.

Residents also moved between houses within a community due to building maintenance or habitability issues. In Mungalawurru, repairs to a wasp damaged building made it habitable again, resulting in a family moving in, while the art centre moved out of that building to another. Some individuals lead a more "maverick" existence (Smith), living between households and across different

outstations. A number of houses experience a large number of houseguests, particularly during school breaks.

The 2006 Census showed that a third of Indigenous people (39%) living in occupied private dwellings were children under 15 years, about twice the proportion of the non-Indigenous population (20%). Indigenous households in very remote areas consisted of an average of 4.9 persons, compared with 2.5 in non-Indigenous households and were far more likely to be multi-family households (20% of all households, compared with 1% of non-Indigenous households) (ABS 2006). Although these figures do not demonstrate the mobility that occurs between houses, they do show that households may be comprised of more than one economic unit, such as a couple, a family with dependents and single individuals.

In smaller communities, the extra-household economy may be more important than the individual household, whereby "linked" households share resources, thus providing a better indicator of the economic capacity of the community. One of the reasons for people living on an outstation is that they provide "more politically manageable social units away from the social pathologies of overcrowded centralised settlements" (Taylor 2006, 53). Reciprocity between households can therefore be an indicator of social cohesion or insurance against individual hardship (Altman 1987, 103, cited in Smith 1991, 15). Such systems of sharing across households raise the question of whether a more communal approach to internet is appropriate for small communities, such as a shared wireless point. Moreover, if the consumption of goods and payment of bills are not organised according to household at all then this may have consequences for how "home internet" is conceived and managed.

The large numbers of residents per house means that space is an issue (in terms of where to put a computer), although we found that this did not necessarily rule out the possibility of having a computer. A number of people suggested that, ideally, they needed an extra room to house a computer and spoke of the ideal room. The various suggestions that computers be housed in another building, such as a multi-purpose shed, could be interpreted as the equivalent of wanting a

separate office for people to work in rather than taking up space in small or crowded houses.

This also has implications for how we conceive of public and private use of computers. In her ethnographic study of young people, Kral argues that communal spaces, such as youth programs or media centres, are a kind of "digital bedroom" for adolescents in remote communities – a place for retreat and self-expression. These public spaces give them a level of privacy "that is so difficult to attain in the home" as well as safe storage for their work. Young people experience a "sense of ownership, belonging and control" that is otherwise difficult for them to attain (2010, 6). A significant issue for outstations, where shared facilities are unavailable, is whether such private use can occur in the home and whether a critical mass of computers or other connected devices may eventually provide some level of privacy for users.

Participants also raised more practical, or mundane, issues related to the home. Computer maintenance and repairs was listed second (after cost) as a barrier to computing in Kwale Kwale and Mungalawurru, and fourth in Imangara. Minor concerns included care for computers and electrical equipment generally. Participants were mostly concerned about children and dogs damaging computers, especially by causing spills. There was also a perception that children could damage computers if they "press the wrong buttons". When we discussed the differences between laptops and desktops, many people expressed a preference for desktops, as they are likely to stay in one place, look somewhat more robust and easier to use (with bigger display etc), and as the individual parts (keyboard, monitor, mouse) could be replaced.

Conclusion: Policy Implications

The dispersed nature and small size of most remote Indigenous communities continues to be a significant challenge for government in terms of service provision and basic communication. Providing services through broadband networks could assist Indigenous people to live on their lands without having to

suffer disadvantage as a result of that choice. However, the benefits of broadband will not be realised while take-up remains low. This study investigated the reasons for low take-up, as well as the perceived communication needs of residents in three remote Indigenous communities.

We found that many residents were well aware of the practical domestic considerations involved with home computers. These included security of equipment and the family rules associated with usage. Despite the obstacles, there was much interest and curiosity about computers and the internet. Broadband has the potential to connect dispersed, small communities to services and enterprise development, whilst providing social connectivity where other communications infrastructure is scarce. Residents identified a range of specific needs, including children's education, keeping in touch with friends and family, enterprise, access to services, administration and entertainment.

We found that household economics is a significant barrier, not just in terms of affordability, but also because costs may be distributed among the community in ways that are not conducive to conventional billing and internet service offerings. This complicates definitions and measurements for "home internet", which is likely to mean something different in outstations than in the mainstream population. Although the home is the only real option for the physical location of computers in outstations, a new way of thinking about payment mechanisms, may be a necessary precondition for wider take-up. This issue is not only about cost: the mobility of residents between houses requires a different approach to the standard 'one service per household' model. Wi-fi networks have the advantage of enabling use across different dwellings, and also from a mix of devices, including smart phones, music players and other mobile devices.

In terms of household economics, the costs of internet access may be offset by a reduction in other expenses, such as petrol and service costs for everyday transactions (such as automatic teller machine fees, which can be high in remote community stores). Even so, there are strong arguments for further subsidisation of internet access for residents of these communities. Free-to-

access community internet service may be the most practical and successful option. Public provision would generate cost savings across other government programs, particularly where government workers or other service providers are travelling long distances to assist residents with basic transactions. Such an approach would be consistent with the 'hub and spoke' model of funding services in larger communities, making electronic communication and service delivery an option among others for supporting small populations reluctant to move into larger towns.

One approach would be to provide free internet access while residents fund their own computers and mobile devices. There is also the potential to improve an existing scheme, the Indigenous Communications Program, where community satellite phones are already provided, including free calls. The satellite phones could be adapted to include a wifi capability, enabling them to function as base stations connecting nearby dwellings to a satellite broadband service. This approach might avoid the need to purchase other satellite internet equipment, providing free internet access to the 300 small communities that the Indigenous Communications Program currently serves at low cost. Such a program would also overcome significant existing barriers, including technical knowledge and easy access to telephone calls, both of which are required to negotiate an internet connection with a retailer. Extending existing training programs to outstations would complement this approach, as well as maintenance visits to assist people to understand and overcome simple technical issues.

As this study found, many people were not connected to the internet simply because they did not know how to connect, or did not know enough about the internet to determine what services were available in their area. The policy of providing shared facilities to larger towns avoids rather than resolves these issues. Although a policy of free wifi might revive concerns about welfare-based models of support, it would also have the potential to foster the development of new capacity, and new resources, in these communities. It would encourage knowledge transfer concerning hardware maintenance and digital literacy, and provide a valuable incentive for the personal ownership and management of computers and mobile devices.

Acknowledgements

References

Altman, J 2006b, *In Search of an Outstations Policy for Indigenous Australians*, Working Paper No. 34/2006, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

Australian Bureau of Statistics (ABS) 2006, Census data, viewed 15 November 2009, http://abs.gov.au/webs- itedbs/D310114.nsf/home/Census+data.

Australian Bureau of Statistics (ABS) 2009, *Children's Participation in Cultural and Leisure Activities*, cat no. 4901.0 , viewed 20 January 2011, http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4901.0Explanatory%20N otes1Apr%202009?OpenDocument.

Australian Communications and Media Authority (ACMA) 2010, *Trends in media use by children and young people: Insights from the Kaiser Family Foundation's Generation M2 2009 (USA), and results from the ACMA's Media and communications in Australian families 2007*, viewed 1 February 2011, http://www.acma.gov.au/WEB/STANDARD..PC/pc=PC_312174.

Blanchard, CA 1987, *Return to Country: The Aboriginal Homelands Movement in Australia*, House of Representatives Standing Committee on Aboriginal Affairs, Australian Government Publishing Service, Canberra.

Conroy, S 2011, 'Summit highlights importance of NBN for regional Australia', Media Release Minister for Broadband Communications and the Digital Economy, 17 February 2011, viewed 16 August, 2011, http://www.minister.dbcde.gov.au/media/media_releases/2011/135.

Ewing, S & Thomas, J 2010, *The Internet in Australia*, ARC Centre of Excellence for Creative Industries and Innovation, viewed 22 August 2011, http://www.cci.edu.au/publications/digital-futures-2010.

Jackson, LA, von Eye, A, Biocca, FA, Barbatsis, G, Zhao, Y & Fitzgerald, HE 2006, 'Does Home Internet Use Influence the Academic Performance of Low-Income Children?', *Developmental Psychology*, vol. 42, no. 3, pp. 429–435.

Kerins, S 2010, 'The future of homelands/outstations', Dialogue (Academy of the Social Sciences in Australia), vol. 29, no. 1, pp. 52-60.

Kowal, E 2010 'Is culture the problem or the solution? Outstation health and the politics of remoteness.' In Altman, J. and Hinkson, M. (eds), *Culture Crisis: Anthropology and Politics in Remote Aboriginal Australia.* University of New South Wales, Sydney, pp 179-193.

Kral, I 2010, *Plugged in: Remote Australian Indigenous Youth and Digital Culture*, Working Paper, no. 69/2010, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra, viewed 20 December 2010, http://caepr.anu.edu.au/Publications/WP/2010WP69.php.

Livingstone, S, Haddon, L, Görzig, A, and Ólafsson, K 2011, *Risks and safety on the internet: The perspective of European children. Full Findings.* LSE, London: EU Kids Online.

Moran, M 2010, 'The viability of hub settlements', *Dialogue*, vol. 29, pp. 38-49.

Rennie, E, Crouch, A, Wright, A & Thomas, J 2011.*Home Internet for Remote Indigenous Communities*, Australian Communications Consumer Actions Network, Sydney.

Rennie, E, Crouch, A, Thomas, J & Taylor, P 2010, 'Beyond public access? Reconsidering broadband for remote Indigenous communities', *Communication, Politics and Culture*, vol. 43, no. 1, pp. 48-69.

Rowley, KG, Daniel, M, Skinner, K, et al 2000, 'Effectiveness of a community-directed "healthy lifestyle" program in a remote Australian aboriginal community', *Australian New Zealand Journal of Public Health*, vol. 24, pp. 136-144.

Rowley, KG, O'Dea, K, Anderson, I, et al. 2008, 'Lower than expected morbidity and mortality of an Australian Aboriginal population: 10 year follow-up in a decentralised community', *Medical Journal of Australia*, vol. 188, no. 5, pp. 283-287.

Rowse, Tim 2010, 'Refiguring 'Indigenous Culture' , In Altman, J and Hinkson, M. (eds), *Culture Crisis: Anthropology and Politics in Remote Aboriginal Australia.* University of New South Wales, Sydney, pp.153-178

Rowse, T 1998, 'From Houses to Households? The Aboriginal Development Commission and Economic Adaptation by Alice Springs Town Campers', *Social Analysis*, no. 24, pp. 50-64.

Schwab, RG 1995, *The Calculus of Reciprocity: Principles and Implications of Aboriginal Sharing*, Discussion Paper, no. 100/1995, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

Smith, DE 1991, *Toward an Aboriginal household expenditure survey: conceptual, methodological and cultural considerations*, Discussion Paper, no.10/1991, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

Smith, BR & Claudie, D 2003, *Developing a land and resource management framework for Kaanju homelands, Central Cape York Peninsula*, Discussion Paper, no. 256/2003, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

Sutton, P 2009, *The Politics of Suffering: Indigenous Australia and the End of the Liberal,* Melbourne University Press, Melbourne

Tangentyere Council Research Hub & Central Land Council (TC/CLC) 2007, *Ingerrekenhe Antirrkweme: Mobile Phone Use Among Low Income Aboriginal People: A Central Australian Snapshot,* Tangentyere Council & Central Land Council, Alice Springs.

Taylor, J 2006, *Population and Diversity: Policy Implications of Emerging Indigenous Demographic Trends*, Discussion Paper, no. 283/2006, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

Taylor, J 1988, 'Aboriginal Population Change and Service Provision in Katherine: 1988-1993', unpublished report for the Aboriginal Action Group, Katherine.

Thorner, S 2010, 'Imagining an Indigital Interface: Ara Irititja Indigenizes the Technologies of Knowledge Management', *Collections: A Journal for Museum and Archives Professionals*, vol. 6, no. 3, pp. 125–146.

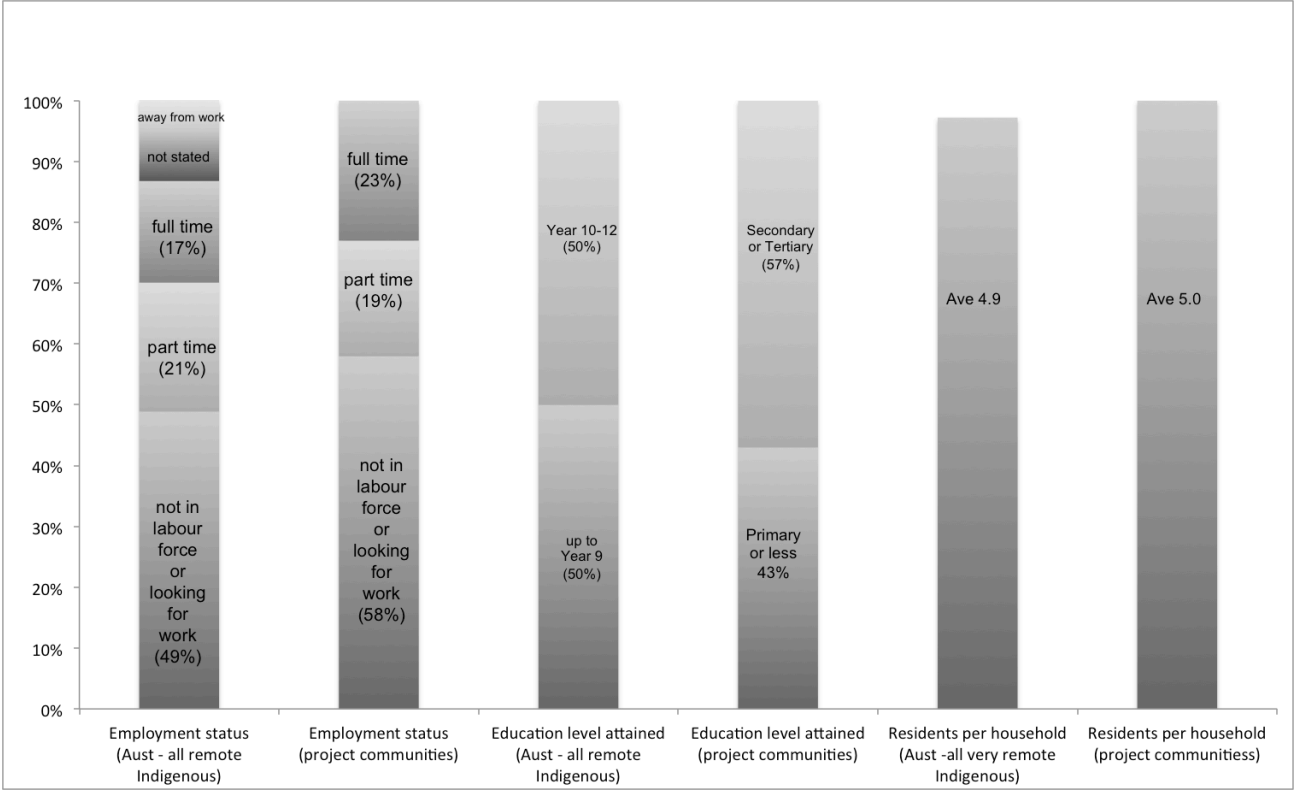Black and white pictures/tables for printing:

FIGURE 1

FIGURE 2

FIGURE 3

no. of residents

8
7
6
5
4
3
2
1
0

□ have used neither
▨ have used computer only
■ have used computer + internet

age group 10-18   age group 18-30   age group 30-45   age group 45-60   age group 60+

30