# Digital Divide Experiences from the Chatham Islands

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## ABSTRACT

The digital divide can be represented by the gap between those who have the infrastructure, resources and skills to participate fully in the digital era and those who do not. This may be due to differences in socio-economic status, gender, life stage, urban and rural living, and geographical remoteness. The digital divide has an impact on how people access and use information, and experience social, economic and educational equality. For this research, an exploratory case study approach was used to determine if geographical remoteness had an impact on the digital citizenship of people living in the Chatham Islands of New Zealand. Results show that geographical remoteness is still a contributor to the digital divide, despite the improvements made to the Islands' Internet access options. The Islander's skills and literacies were born out of need due to their isolation.

**Keywords**: digital divide, digital citizenship, digital literacy, Chatham Islands, New Zealand

## 1. INTRODUCTION

The gap between those who have the infrastructure, resources, and skills to engage with Information and Communication Technologies (ICT) and participate in the digital era and those that do not is usually referred to as the digital divide (Howland, 1998; Hargittai, 1999; Nanthikesan, 2000). This divide is often apparent due to differences in socio-economic status, gender, life stage and the lack of skills and experience to take advantage of the benefits ICT use provides (Selwyn, 2004). Furuholt and Kristiansen (2007) also argue that the digital divide is represented due to the differences in availability of Internet access between urban and rural areas and locations represented by their extreme remoteness. The digital divide impacts how people access and use information, as well as their ability to experience socio-economic and educational equality (West, 2015).

In this research, the small and isolated New Zealand community of the Chatham Islands, provides the backdrop for discussing current digital divide issues. The Chatham Islands are an extreme example of isolated New Zealand (NZ) and a "place-based" community constrained by geographical remoteness. The Islands are located 650km east of NZ and are accessible only by air and sea (Figure 1).

Due to the isolation, the Chatham Island community has historically often felt forgotten, particularly when it comes to funding and initiatives, and provision of services that their mainland counterparts take for granted. Currently, this is particularly noticeable with the provision of ICT services and access to the Internet. The location of the Chatham Islands means that they are on the fringes of strong satellite coverage and experience unreliable, slow and expensive ICT network connections. These networks are provisioned by rural broadband providers and rely on the consumer purchasing satellite equipment as one-off investments and expensive monthly costs. Some locations within the Chatham Islands have no Internet access, and the Islands have no infrastructure for a mobile network or service.

Although access to the Internet represents only a fraction of potential issues when discussing the digital divide, the Chatham Islands are well placed to be representative of a community who experience the digital divide based solely on this criterion. Geographical isolation also contributes to the digital divide in areas such as social and economic inclusion, educational opportunities, and any other number of areas and sub areas where ICT use has become synonymous with individuals being digitally literate and a functioning digital citizen. This paper firstly reviews the literature and discusses the broader picture of digital divides and digital literacy and citizenship. This is followed by a presentation of a case study, where a small group of Chatham Island citizens were interviewed about their experiences accessing the Internet and developing their digital skills.


**Figure 1. Chatham Islands location relative to NZ**

## 2. LITERATURE REVIEW

The Digital Divide is a multi-faceted concept with many disparate meanings (van Dijk & Hacker, 2003) although it has usually been referred to in terms of those who have access to the Internet and those that do not (Wresch, 1996). The digital divide discussion on the 'haves' and the 'have-nots' centred on disparities of wealth and available infrastructure to support Internet access across developed and developing countries

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(Hargittai, 1999; Nanthikesan, 2000; Norris, 2000). This divide is still a real issue and as West (2015) explains, 58% of the world is still without Internet access and are unable to benefit from the social, economic and civic benefits connectivity affords.

The benefits of Internet access and ICT use has been articulated in terms of both benefits to countries, societies, and individuals. Economic growth, improved health care and education, increased civic education and governance, and greater social cohesion are identified by West (2015) as ways the Internet brings benefits to developing countries. Although wealth disparity and access are still recognized as key issues, discussion broadened as the digital divide started to be recognised as being a deeper issue than just having available infrastructure and access. Cisler (as cited in Warschauer, 2002) argues that the 'haves' and 'have-nots' bi-polar representation of the digital divide should be viewed less superficially and represented as a spectrum or continuum, reflecting degrees of access and use, while also recognizing disparities originating from a wider framework of social complexities. From this more comprehensive definition, influencing variables such as income, education, age, gender and ethnicity (van Dijk & Hacker, 2003) and broader themes related to social theory and social inclusion (Selwyn, 2004; Van Deursen & Van Dijk, 2010) began to underpin what was sometimes called 'the second divide' (Van Deursen & Van Dijk, 2010, p. 908) digital divide research.

Robinson et al. (2015) argue that socio-demographic factors remain key explanatory variables of Internet access differences. However, Gurstein (2015) proposes that the focus had shifted to how individuals make effective use of the Internet and its available information, and what this means in terms of experiencing local equality, community enablement and empowerment. Digital access and use, its role in education and academic performance, individual entrepreneurship, health service uptake (Robinson et al., 2015) and in the broader issues of social justice (Gurstein, 2015) has also been illustrated in the literature. The digital divide in developed countries also reflects existing inequalities such as income, education rural/urban divides, age and more recently with a global population shift due to civil unrest and immigration (Haight, Quan-Haase & Corbett, 2014).

Developed countries have been less challenged than developing countries by economic and infrastructure constraints and several have initiated programs to reduce their own digital divides. In Canada, the Ministry of Industry implemented a Community Access Program (CAP) in 1995 that aimed to enable the Internet in areas that were otherwise unlikely to gain access (Blanton, 2013). Australia has a widespread population with some rural communities located in areas not easily accessible. The divide in Australia was discussed as early as 1997 when the Networking the Nation (NTN) project was implemented and aimed to improve telecommunication in remote areas. In a similar strategy to the Canadian CAP project, the NTN provided millions of dollars across a range of projects enabling community-based access through rural technology centres (De Weaver & Ellis, 2008).

More recently, in a report by Roy Morgan Research (2016), key findings suggested that while Australians overall are using the Internet for a wide range of purposes, those with low levels of income, education and employment were still missing out. Australia's indigenous population were also still under represented; however, the report did not account for populations living in the most remote areas. The report noted significant differences between closer rural and urban areas, but overall this divide was more represented in the populations' digital ability and overall access affordability between the rural and urban areas rather than access itself (Roy Morgan Research, 2016). Having physical access to ICT and the Internet does not necessarily mean that people know how to use them and for what benefit (Pigg, 2005).

In developed countries, contemporary research indicates that the divide is not only represented by the traditional indicators of access and socio-demographic factors, but can now be thought of in terms of access speed such as in broadband and mobile data options (Riddleston & Singleton, 2014; Townsend, Sathiaseelan, Fairhurst & Wallace, 2013) and digital literacy and citizenship abilities.

Broadband adoption has been used in the United States to illustrate demographic inequality (Chaudhuri, Flamm & Horrigan, 2005) and in the UK, Dwivedi and Lal (2007) found broadband adoption was affected by all socio-economic variables except gender. An earlier study concluded positive relationships between technology adoption and higher educational qualifications (Venkatesh, Chuan-Fong & Stolzoff, 2000) and income (Mason & Hacker, 2003) but later studies pointed towards broadband adoption as enablers of those who already had higher incomes and education, and further isolating those that do not.

Internet access bridges one digital divide, but people also require skills to use the Internet effectively and to take advantage of its many identified benefits. These core skills, or digital literacy is the ability to not only have the technical ICT skills to operate a computer or Internet capable device, but to also competently use the Internet for digital information retrieval and production and professional and social communication (Eshet-Alkalai, 2004). It is the ability to use the technology in a meaningful way by exhibiting digital fluency that is important. Digital fluency is defined as the cognitive ability to use Internet based resources in a critical way and for a variety of purposes (Lankshear & Knobel, 2008). This has importance in marginalized communities as ICT and the Internet can serve as the vehicle for expressing the community's unique ambitions and aspirations, fostering engagement and creating social capital (Harris, 2007). However, those who are illiterate, who do not communicate in one of the major global languages, and who have never learned to use a computer will still have difficulty with access, let alone be able to use the Internet effectively (Warschauer, 2004).

Statistics New Zealand reported on the digital divide in New Zealand (NZ) up until 2012. In 2012, 1.3 million NZ homes had some form of Internet connection. The larger cities of Wellington and Auckland had the highest proportion of users and rural access was on the rise, with four out of five households connected (Statistics NZ, 2012). The big change was the number of people using mobile devices to access the Internet and the number of households who accessed using more than one device. The statistics look promising, however alternative research offers a slightly different perspective. In a report released by the Institute of Culture Discourse and Communication, authors Crothers, Smith, Urale and Bell (2016) discovered the 'have-nots' of access and literacy on the "wrong side of the digital divide keep on climbing" (p. i). The divide was greater for those over the age of 65 and who had low income, whereas younger people were well represented as consistent users of the Internet as was those in urban areas compared to rural areas. However, as engaged as the younger people are, "this does not mean they have the knowledge or skills to use the internet in a meaningful way" (The digital divides persist in New Zealand, 2015, p. 1). A small percentage of New Zealand's population has never used the Internet, citing lack of devices, cost and lack of knowledge as reasons for lack

of access (Crothers et al., 2016). The most 'digitally excluded' citizens in New Zealand are "adults with disabilities, children with special needs, Pasifika, Māori, senior citizens and people from low socio-economic backgrounds and those living in communities with low Internet take up rates" (The digital divides persist in New Zealand, 2015, p. 1).

Lack of knowledge, one of the key digital divide and digital literacy indicators, is talked about in NZ in terms of digital citizenship. Netsafe NZ defines a digital citizen as, "someone who can fluently combine digital skills, knowledge and attitudes to participate in society as an active, connected, lifelong learner" (Netsafe NZ, 2016, p. 4).

# 3. METHODOLOGY

## 3.1 Purpose

The purpose of this research was to determine if geographical remoteness was still a valid digital divide issue in developed countries. For that purpose, the Chatham Islands was chosen as it provided a unique opportunity to interview a small group of people about their experiences with accessing the Internet and how they thought this affected their ability to be capable digital citizens.

This research was approved in 2017 by the Eastern Institute of Technology Research and Ethics Approvals Committee.

## 3.2 Method

This study was based on a qualitative approach and used a case study research design. The case study has been defined as an "empirical inquiry that investigates a contemporary phenomenon in depth and within its real-world context" (Yin, 2014, p. 16) and is "tied to a specific situation and locality" (Holloway & Wheeler, 2002, p. 222). Case studies can either be singular or consist of multiple cases depending on the nature of the research. Within this case study, two data collection methods were used; a questionnaire and a focus group interview. For the purpose of this paper, only the focus group interview data is reported. The focus group provided a group setting whereby semi-structured interview questions could be discussed and answered by members of the group (Whitley, 2001). The informal setting (home of one of the participants) provided the context in which the researcher immersed herself into the experiences of the participants by also responding to their questions, expressing empathy and contributing to the discourse in line with a friendship approach to interviewing (Oakley, 1981; Tillman-Healy, 2003).

This approach was considered appropriate given that the context was the Chatham Islands which represents a singularly unique community providing a clear and defined parameter to the research.

## 3.3 Participants

The case study participants consisted of seven female parent/caregivers who had children attending primary school and who lived on the Chatham Islands at the time of the research in July 2017. Participants were recruited through a snowball sampling procedure. This is defined as a sampling method whereby the researcher "accesses informants through contact information that is provided by other informants" (Noy, 2008, p. 330).

## 3.4 Data Collection

The researcher flew to the Chatham Islands in July 2017 and the focus group interview was held at that time and in the home of one of the participants in the village of Owenga on the main Island of Chatham, one of the two only inhabited islands in the archipelago (see the map in Figure 2).

For the purpose of this paper, the following two focus group questions are discussed:

- What are your current operational ICT challenges/problems?
- What are the things that challenge you most when using the Internet?

The interview was very organic and the discussion often drifted into other ICT related areas where the participants shared issues and expressed some concerns. Identified issues outside the scope of this paper are not reported here but may be used to inform future research. The interview was recorded and subsequently transcribed and coded.


**Figure 2. Chatham Islands showing Owenga site of the focus group interviews**

# 4. FINDINGS AND DISCUSSION

The findings are detailed in sections according to the categories, themes and sub-themes that emerged from the coding of the focus group data. An overview of the categories and themes from the qualitative analysis of the focus group data are provided below in Table 1.

**Table 1. Categories and Themes emerging from the Qualitative Analysis**

| Categories | Themes | Sub-themes |
|---|---|---|
| Digital Divide | Access | Speed |
| | | Reliability |
| | | Cost |
| | | Options |
| Digital Literacies | Operational Skills and Issues | Ease of use |
| | | Perceived usefulness |
| | Online literacies | Social Media |
| | | Online safety |

These themes are discussed in an order that reflects the historical emergence of digital literacy research. The order of discussion is; the barriers and challenges of both the traditional and contemporary digital divides (access options, reliability, cost and speed), operational skills and issues, online literacies, and the positive effect social media has had despite ongoing challenges.

## 4.1 The Digital Divide

The Chatham Island's divide can be expressed more in terms of the contemporary digital divide described by Riddleston and Singleton (2014) where access options, speed and digital skills and literacies are the limiting factors.

### *4.1.1 Access*

The Islands have Internet access options. However, it is the overall reliability and quality of access that is of concern to the participants. Three providers service the Islands. SparkNZ provided a dial-up Internet service and Farmside and Wireless Nation both provide broadband solutions using the Optus D2 Satellite. The Optus D2 satellite lies west of New Zealand at the 152 degrees East geostationary orbital location (Farmside, 2016). Farmside offer three plans to their Chatham Island customers. These plans ranged from $49.35 per month with a 20GB data cap, up to $217.35 per month for an 80GB data cap, including local calls and national minutes (Farmside, 2017). Additional fees applied as the user had to install a small satellite dish. Wireless Nation plans started at $90.85 and are available if you live within a two to three kilometre 'line of sight' radius of their wireless antenna towers located in the main townships of Waitangi, Kaingaroa and Owenga. These antennae relay Internet signals through to a local satellite dish and onto the satellite network (Wireless Nation, 2017). To see how this worked in practice, the participants encouraged a visit to a home not far away from the focus group interview venue in Owenga. The purpose was to highlight how one homeowner had cut a large hole in a shelterbelt to meet the line of sight requirements so they could get access (see Figure 3).

**Figure 3. Photo showing trees cut to enable access**

All the participants in this study were customers of either Farmside or Wireless Nation satellite broadband providers. Although the islands have provision of satellite enabled broadband, it is not without issues. Participants reported the services to be consistently unreliable and slow.

*We've been at work and we've lost it, cus [sic] we've lost it for the whole day (Participant 1)*

*I think the provider has to be more reliable … My Internet at home is just, is just shit. I have to be only in one certain part of the house to pick it up (Participant 2)*

*I've got this satellite, I've got the dish, cus [sic] it's satellite, it's so soooo slow, so you're paying for very slow service (Participant 3)*

*When it works it's fantastic, but when it drops down, when that happens, it's not ideal (Participant 4)*

This makes sense given the line of sight requirements of the Wireless Nation service (Wireless Nation, 2017). Lower signal levels are also due to the Islands' position on the outer fringes of the Optus D2 satellite coverage area where a larger satellite dish is needed to cope with a lower Equivalent Isotropically Radiated Power (EIRP) and associated lower signal levels (see Figure 6) (SatBeams, 2017). In 2014, it was recognized that "the poor signal strength of the satellite spot beam means that it is not possible to receive reasonable broadband performance" (Ministry of Business, Innovation and Employment, 2014) and a government initiative saw the injection of $2.48 million into the Island's infrastructure in an agreement with Wireless Nation to provide a more stable service. Satellite broadband is globally seen as an alternative to connectivity delivered over land-based systems such as the traditional copperwire and the more recent ultra-fast broadband fibre service, particularly areas like the Chatham Islands that are considered hard to reach, or as Philip, Cottrill, Farrington, Williams and Ashmore (2017) describe it, 'deep rural' (p. 389). Ongoing global initiatives are working towards providing access to these remote areas. Satellite services are being promoted as having a fundamental role in development of the rural community economic productivity and helping to make these areas attractive places to live (Agnelli, Feltz, Griffiths & Roth, 2014).

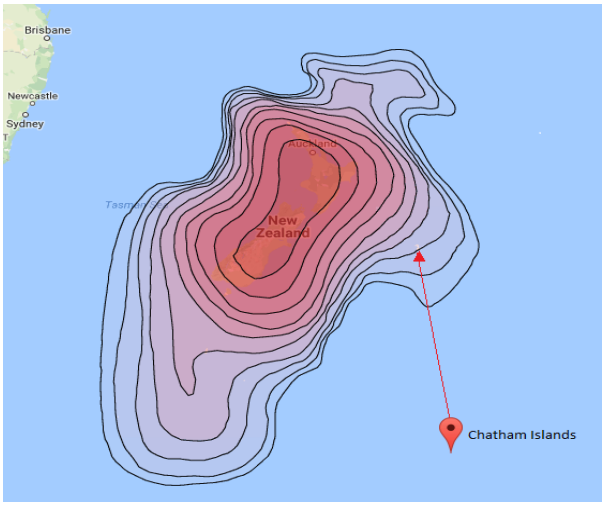


**Figure 4. Optus D2 Coverage Map showing EIRP levels (Satbeams, 2017)**

The injection of money into improving the Island satellite infrastructure lead to consensus among the participants that while the current service was often unreliable and slow it had improved over the last two or so years.

*Two years ago, they [Wireless Nation] were terrible, but they've picked up a lot, they used to drop off quite a lot and*

*<umm> and on power cuts, but they've sorted out their back up power and their switching back on, and we've had so few problems in the last year and a half…. Really reliable. Really good (Participant 5)*

Regardless of the improved service, participants were fearful of the future and the providers' commitment to ongoing support for Island access. Participants reported that new connections were unavailable due to the satellite reaching its capacity and the providers' reluctance to upgrade the service.

*…but Farmside apparently is changing hands and we're going to lose all Internet and the satellite, cus [sic] apparently the satellites are dying and then they haven't got any thing for the Chathams cus [sic] we're just too far away, they've got to upgrade it but they haven't actually got a plan for us, so if you can't at the moment, a lot of people like [name] and [name] are having problems, they can't get any connection. So, they have to go without because they still are a bit iffy what they gonna do for the Chathams (Participant 2)*

*They don't want to extend anymore investment in the capability (Participant 5)*

According to Optus (2013), the D2 satellite launched in 2007 and has a lifespan of 15 years, so it should have at least five more years of operation under normal conditions. Other New Zealand services also use this satellite including SkyTV, and the free to air service, Freeview.

Additionally, the Chatham Islands lack a mobile phone service. This issue was flagged for negotiation of a provision of service in 2014 (Joyce, 2014). However, participants reported there has been no progress with this to date. Despite the lack of a mobile service, all participants owned a mobile phone and used these when travelling to the mainland, although participants stated they often forgot they had them. One participant said she didn't miss having a mobile service on the Island. However, another did think that they possibly needed a mobile service more than anyone else, purely due to their remoteness.

*I think they just think we don't need it as much as but, we almost need it more, because we are so isolated (Participant 2)*

There was a consensus that having access to a mobile phone was seen as 'normal' everywhere else and people were often surprised that there was no service on the Island.

### *4.1.2 Costs and Data Capping*

Participants also felt that the cost of the services (less so) and the associated data caps (more so) impacted on their ability to access the Internet as much as they would like.

*Mine's $300 a month and that's for Internet, landline and my calling so I get a certain amount peak hour and then 50gig off peak and its $310 or something like that (Participant 6)*

*I get 10 gigs during the day and 30 off-peak and its $220 (Participant 2)*

*So, we've got 50 gigs and I think and our phone and everything is on it, I think it's, and free national calling and all, I think it's $197 (Participant 1)*

The cost of Internet access depended on the provider and the plan. Comparison with the providers' plan details showed that most of the participants were on the more expensive and higher data capped plans, however they were finding the data allowance insufficient to cope with their online needs. This is in line with Philip et al. (2017) who report that satellite services rarely offer unlimited data options, which makes "contracts for a satellite service more expensive than a standard fixed broadband contract" (p. 396).

They were concerned about the data caps and the restriction this placed on their current and future use.

*We are reaching a point that when we're on the Internet 30 [GB] is not enough … Even if I could afford it, I don't think I 'd [be able to] get a bigger data package from Wireless Nation (Participant 5)*

*I'm forever getting to 100% (Participant 2)*

The participants had worked out strategies to use their data during off-peak times, noting that the 45-minute time difference between mainland NZ and the Islands helped them do this. Data caps also had an impact on the restrictions the group placed on their children's Internet access. One participant admitted this was one reason she didn't let her children use the Internet at all, although she did say that her children were still quite young.

*It's just like, you can restrict everything, like, so like it's easier for me a) for my data usage umm b) for me I mean, my kids are only 8 and 6 (Participant 1)*

Access to the Internet bridges one digital divide, and although access reliability, speed and cost affected the overall experience, the Chatham Island group could regularly get online. However, the digital divide is also represented by a lack of operational skills and online literacies in users that may also hinder their ability to take productive and meaningful advantage of the Internet.

## 4.2 Digital Literacies

### *4.2.1 ICT operational literacies*

Operational deficiencies were also discussed during the focus group interview. One participant reflected on what she did not know.

*There's a lot of stuff, shortcuts and stuff, that I'm not sure about now, the shortcuts of doing things on the computer, on the keyboard (Participant 4)*

The participants owned and used a variety of devices including laptops, desktop computers, iPads and tablets, iPods and mobile phones. They were more at ease using a laptop in work situations as they were easier to use and provided them with the features they needed. Participants had a real reluctance to

change operating systems or upgrade devices. Participants felt that the newer operating systems were less useful.

> *I find on Windows 10 there's not as much …. of the programs that are normally on the windows 7 … it really really annoys me (Participant 3)*

This participant's perception of 'lack of usefulness' in the newer technology has previously been well documented by other researchers as a construct that influences technological adoption.

### *4.2.2 Internet literacies and citizenship*

The participants considered themselves competent users of the Internet. One went as far as to generalize as to the overall e-commerce skills of the Island residents.

> *… we're Internet savvy, like they know how to order their groceries or if you wanna [sic] do <um>, online grocery shopping is the norm for us, online shopping … that, we are quite good at that, if you ask anyone, we have it down pat now, we know what day to order it and what day it will probably come in (Participant 6)*

The skills the participants had developed were motivated by necessity born of their isolation; online shopping to order goods, online banking for paying accounts, sending money to NZ based children, and using online resources such as videos and how-to websites to learn how to fix things. The Chatham Islands have limited retail and shopping options; one general grocery store, one small hardware store, an ANZ bank with limited service hours, café, hotel, and a small garage that services the Island vehicles. Most products arrive into the Island by ship, once every three or four weeks. This includes groceries, fruit and vegetables, clothing, vehicles, farm and household items.

### *4.2.3 Social media*

The participants were happy using social media for a variety of purposes. They were very comfortable using Facebook, particularly for keeping in contact with family overseas and for its usefulness in emergencies where traditional forms of contact were not available. Social media has emerged as a tool that can quickly provide accessible information to the public in times of natural disaster (Bunce, Partridge & Davis, 2012; Bruns & Burgess, 2012) and use of social media for this purpose is evident in the participants' comments.

> *…during cyclone Pam, my Facebook was a huge source of information (Participant 5)*

> *Christchurch earthquake was a prime example … mmm kids at high school and we first year, [Son], we had no access, no telephone nothing. So, it's like they've been at school for 4 weeks and she was all on. I didn't have Internet cus [sic] it was too expensive at that time but Mum could Facebook people in Christchurch to try and text him, yeah, to see where he was at (Participant 4)*

One participant felt that their isolation contributed to their adoption of social media. This participant also felt the Islanders experienced a unique social situation with the large number of mutual friends they had. This online representation of close ties reflects a community that has a strong bond, born of the isolating effect of the Islands geography, close whanau (family) connections and tightly overlapping social circles.

> *Maybe that's made us better at adopting things like Facebook because I think the usage here would be fairly high … We've got 200 mutual friends, haven't we? I've tried to explain that to people in New Zealand and they're like what? (Participant 5)*

The large number of mutual friends (friends in common on Facebook) also meant Facebook could be used to track people down instead of their traditional method of ringing around. However, there were privacy concerns and some fear about the location tracking abilities of some social media applications.

> *Instead of one person knowing where you are there's ten. All because someone else needs to know where you are … even Snapchat's got that location thing now … where it tells you the location of your friends, know where you are which is quite scary (Participant 4)*

> *It is quite scary, every person having a Snapchat, having a conversation can be tracked to wherever, anywhere in the world (Participant 6)*

One participant did not consider themselves at risk due to this kind of sharing, even outside their immediate social circle.

> *We're in a perfect situation to get used to communicating with people that we haven't seen face to face here because you have that physical distance that's not like when they're still living here … you could talk to anyone it's not overly dangerous to me. It's not like you can hop on a bus and go to someone's house (Participant 5)*

## 5. CONCLUSION

The digital divide experienced by the Chatham Islanders is a consequence of their geographical remoteness and the impact this has on their ability to access a fast and reliable broadband service. Three townships on the Chatham Islands have access via Wireless Nation's line of sight satellite service and Farmside provides a direct satellite service to the areas outside this coverage. However, the services are expensive, data capped and according to the participants often slow and unreliable. These service constraints meant that the participants restricted household Internet use. The participants often reached their data allocation limits and were unable to buy more data at a reasonable rate, or in some cases not at all. The data allocations were increasingly becoming insufficient to meet their online needs.

Future barriers were also high on the participants' minds. Ongoing access was a real concern as satellites were reportedly nearing their 'use-by' dates and had reached connection capacity. The service providers' long-term commitment to the Islands was also under question. There was real fear amongst the participants that they would be left with no service.

It became apparent that the second major barrier to digital citizenship and literacies was the digital literacies themselves. The participants 'knew what they knew' as a result of fulfilling their everyday needs and could perform some skills well. Although the participants labelled themselves as 'Internet savvy', their skills fell into two broad areas. They knew how to order products online, were confident users of Facebook and other social media channels, both skills born of necessity due to their isolation.

The findings from this study indicate that the Chatham Island community have little opportunity to improve their Internet access. They are limited by the current capabilities of the satellite service and the Islands are not unique in this. These limitations occur on a global scale and are evident in deep rural communities everywhere. What the Islanders can take control of however, is lobbying the service providers to ensure longevity of service, to increase data caps and to install additional line of sight access points outside the main centres to widen the coverage. It may be that this needs to be driven by Local Government to become a funded initiative, similar to the 2014 initiative that saw the initial improvement of broadband services to the Island.

## 5.1 Limitations

This case study is limited by the size of the study and the small number of participants. The results of this study should be considered as unique and cannot be generalized or be considered representative of any other isolated area.

# 6. ACKNOWLEDGEMENT

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