The Internet: Social and demographic impacts in Aotearoa New Zealand

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Abstract

The World Internet Project focuses on the social impact of the Internet. This paper presents a summary of findings of the first World Internet Project survey to be undertaken in New Zealand. It provides an overview of New Zealanders' usage and attitudes relating to the Internet in 2007. A national probability sample of 1430 New Zealanders was analysed, with data collected through telephone interviewing. The first part of the paper highlights the main findings. The second part shows how the demographic variables of gender, age, ethnicity, area and income affect New Zealanders' interactions with the Internet. As the first comprehensive study of its type in New Zealand, these findings provide significant insight into key social changes related to the Internet. They also highlight some areas where further research is required.

Introduction

This paper marks a key step in scholarship related to the Internet in New Zealand. For the first time, a wide ranging and comprehensive picture has been obtained of the ways in which the Internet has made and is making a social impact on New Zealanders. The World Internet Project's emphasis on measuring the attitudes and perceptions towards the Internet of both users and non-users, in addition to Internet usage information, provides an over-arching benchmark for comparison against current and future research findings. This paper describes the New Zealand findings that will serve in that way.

History

New Zealand use of electronic bulletin boards began in the late 1970s. New Zealand first became connected to the Internet in 1986, when Victoria University of Wellington began providing dialup access to international USENET services. In 1989 Waikato University established a connection to ARPANET via UCLA. Both Victoria and Waikato initially acted on behalf of other Universities and third party users, until the establishment of commercially based ISPs in the early 1990s (Newman, 2008). Since then, use of the Internet has grown in scope and application in New Zealand, to the point where New Zealand has among the highest proportion (78%) of citizens connected of any country in the world (The World Internet Project,

2008). Over the twenty year span of time since, the nature of the impact of the Internet has continuously changed.

Access

Statistics New Zealand has gathered information about Internet access in New Zealand through a variety of surveys, including the national census. Mostly focusing on Digital Divide issues, they report that income is the most important determinant of Internet access. Higher education levels and the presence of school aged children are also related to higher likelihood of Internet access . They identify Asian New Zealanders as the ethnic group accessing the Internet most frequently, while those living in the main urban centres access the Internet more than those living in more rural areas (Statistics New Zealand, 2006).

Digital Divide

In terms of the broader social impact of the Internet in New Zealand, most of the existing literature focuses on access disparities between different groups. Typical amongst the findings are broad assertions that Maori and Pasifika people have significantly less access to the Internet than other groups (Crump & McIlroy, 2003; Cullen, 2002; Maharey & Swain, 2000; Weaver, 2005). Traditionally, there has been a perceived gender gap in access and use, with males more likely to be involved in Internet-related education or employment (Hutchinson & Weaver, 2004). However, it is important not to overstate this difference as work done by Boyd (2000) illustrates that the differences between teenage boys and girls are more to do with types of activities done online, rather than general levels of use. Differences across age groups in use of the Internet has also been documented by Richardson, Weaver and Zorn (2005), who showed that older New Zealanders were less willing to use the Internet, for a variety of reasons. The disparity between Internet access for urban and rural people in New Zealand remains a matter of great public debate, fuelled by the strategic importance of the agricultural industry and the difficulties of funding costly infrastructure investment across difficult terrain with a low population base (Barton, 2003).

Sectoral Uses

Within the education sector, Lai (1996) documents the early engagements with information and communication technologies (ICTs), some of which bore resemblance to developments later made possible on a larger scale by the Internet. By 2005, Johnson, Kazakov & Švehla were able to report that 100% of

New Zealand schools were connected, over 78% via broadband. In the education sector, the Internet has become ubiquitous and the challenges are now pedagogical. Yet at the same time, questions still remain as to the quality of such access. Further research is needed to better understand the way in which the Internet is being used in schools from one region to the next and whether more subtle digital divides still exist. Within the tertiary sector, the Internet has been used widely, with vigorous discussion occurring over the past decade amongst university level education providers about best practice in delivering e-learning (Asgarkhani, 2004).

As mentioned above, universities were pioneers in Internet use in New Zealand, driven by the advantages that it provided to research. This has continued, with the Internet becoming a key plank in research policy direction from 1999, with the Knowledge Wave conference[1] and associated government policy e-initiatives intending to strengthen and develop New Zealand's research capability (Thorns, 2007). An example of the kind of use that researchers in New Zealand now make of the Internet is the Building Research Capability in the Social Sciences (BRCSS) Network, which aims to build e-research networks in the social sciences, amongst other more disciplinarily located goals. Research networks such as BRCSS have had access to a high speed (10 Gb/sec) infrastructure network known as KAREN (Kiwi Advanced Research and Education Network) since August 2006 (REANNZ, 2007).

While New Zealand's educational engagement with the Internet has been fairly comprehensive, the same cannot be said about the commercial sector. As late as 2000, lack of understanding was found to be a significant reason for lack of engagement with the Internet amongst New Zealand businesses (Information Technology Policy Group, 2000). Since then, two versions of an overarching Digital Strategy (MoED, 2005; MoED, 2008) have been released by the New Zealand government in an effort to provide a clear way forward for business and other sectors.

The state sector has made significant progress since the 1990s when political party websites were judged as mainly existing for the purpose of keeping up the appearance of being abreast of new technology (Roper, 1998). An examination of the websites of major political parties and government departments now reveals a large degree of interactivity, with online processing available for many requests and a great deal of information available. Government agencies have been amongst the most active in promoting Maori language, often including the option to navigate their website in Maori. The Digital Strategy 2.0 includes the goal that;

> In the future, each New Zealander will go to one secure site that will have all their personal information and a record of their interactions with government services. (MoED, 2008, p.16)

[1] A large conference organised by the New Zealand government with participation across a wide variety of sectors, aimed at provide thought leadership and strategic direction for the future.

Aside from obvious concerns over privacy that such a statement raises, it is clear that in New Zealand, government has embraced the Internet wholeheartedly and is engaged comprehensively in utilizing the opportunities made available by the technology.

Zorn, Li and Lowry (2007) explored the patterns of ICT (including Internet) use amongst voluntary organisations. A great deal of variation existed, with some organisations reporting that the Internet was central to many processes, while others had fairly limited use, commonly restricted to email and having a static website. The main factor related to the degree of Internet use for these organisations was financial. Many indicated they would use the Internet more and in different ways if additional funding was available.

Safety

The impact of the Internet on the family has been explored from a number of angles. Evidence both for and against the positive impact of the Internet has been identified (Fung, 2002; Weatherall & Ramsay, 2006). Netsafe, a non-profit organisation, has been active since 1988 in promoting, educating and lobbying for safe Internet practice and use. A number of their reports document concerns with online security, pornographic material, online friendship making and other ongoing safety issues. Netsafe also supports research into cybersafety. In one example, Berson, Berson, Desai, Falls and Fenaughty (2008) examined a range of media used to teach children about cybersafety at school. They emphasise that three key factors determine that effectiveness of such intervention. A coherent theoretical foundation, multiple delivery platforms and opportunities for skill rehearsal are all required.

World Internet Project New Zealand

Building on the platform of the few earlier studies, the World Internet Project NZ survey provides the first comprehensive analysis of a broad range of issues relating to the social impact of the Internet in New Zealand. As such it seeks to provide knowledge about the Internet in New Zealand that covers a wide variety of areas including patterns of access, perceptions in relation to other media, perceptions of reliability and importance, impact on social relationships, online safety issues and web 2.0 issues. How New Zealanders perceive and use the Internet in terms of the above areas will be examined across the major demographic variables of gender, age, ethnicity, settlement type and household income.

Methodology

This New Zealand survey contributes to the World Internet Project, an international collaborative project looking at the social, political and economic impact of the Internet. By gathering longitudinal information on the way people use the Internet and the effect it has on their lives, the World Internet Project aims to enable monitoring of developments and trends in Internet usage both locally and internationally. The 30 project partners conduct surveys every one or two years in their country. The WIPNZ survey contains 24 questions (including subquestions) that are common to all WIP partners, to allow international comparisons, in conjunction with a set of 35 questions (including subquestions) designed specifically for New Zealand. The international questions were agreed upon after discussion amongst all international WIP partners. The New Zealand-specific questions were developed by the WIP NZ team through a process that included a pilot survey. The questions asked in the WIP NZ survey are available from the WIP NZ website: http://wipnz.aut.ac.nz.

The New Zealand survey data was collected through a telephone survey, conducted by a contract surveying company. A random sample of New Zealand adults was selected, together with a booster made up of Maori, Pasifika and Asian[2] populations, and 12-15 year olds. The data set was weighted to reflect both the sampling design and the characteristics of the New Zealand population at the 2006 census. The analysed sample comprises 1430 respondents aged 16 years and above. For the overall sample, the 95% confidence interval (for percentages in the 30-70% range) is +/- 2.3%, and for the users subset +/- 3.4%. Refer to Appendix 1 for further sample characteristics.

Results

Initial summary findings from major question groupings will be presented, followed by findings in relation to the demographic variables of gender, age, ethnicity, area and income. Note that further analysis of the data gathered in this first round of the World Internet Project New Zealand survey is ongoing.

Patterns of access and use

Basic Access

Over three-quarters (78%) of New Zealanders use the Internet. Of the 22% who do not currently use the Internet, some are ex-users (6%) but most have never used it (16%). Non-users are generally older people, live in rural areas, or have lower incomes. They generally indicate that the Internet is not interesting or

[2] This study followed Statistics New Zealand definitions for ethnic groups. See footnotes, 3, 4 and 5 below.

useful to them, or they lack a computer or Internet connection, or the necessary know-how. There is evidence that these non-users are affected by the Internet via its impact on people they know. A fascinating 6% of non-users nevertheless rate the Internet as important, perhaps due to its importance to close relatives or friends.

Around a third of all users spend at least 10 hours a week on the Internet. The largest category (34%) use the Internet at home for less than 4 hours in the week while 17% use it for 5–9 hours. 15% of users report never using the Internet at home, accessing it only from work, school or public sites such as libraries. Nearly half (46%) of users have been using the Internet for 5–9 years, and 21% have been online for less than 4 years. With 27% using the Internet for 10–14 years, there are few (5%) who have been online for over 15 years. See Figure 1.

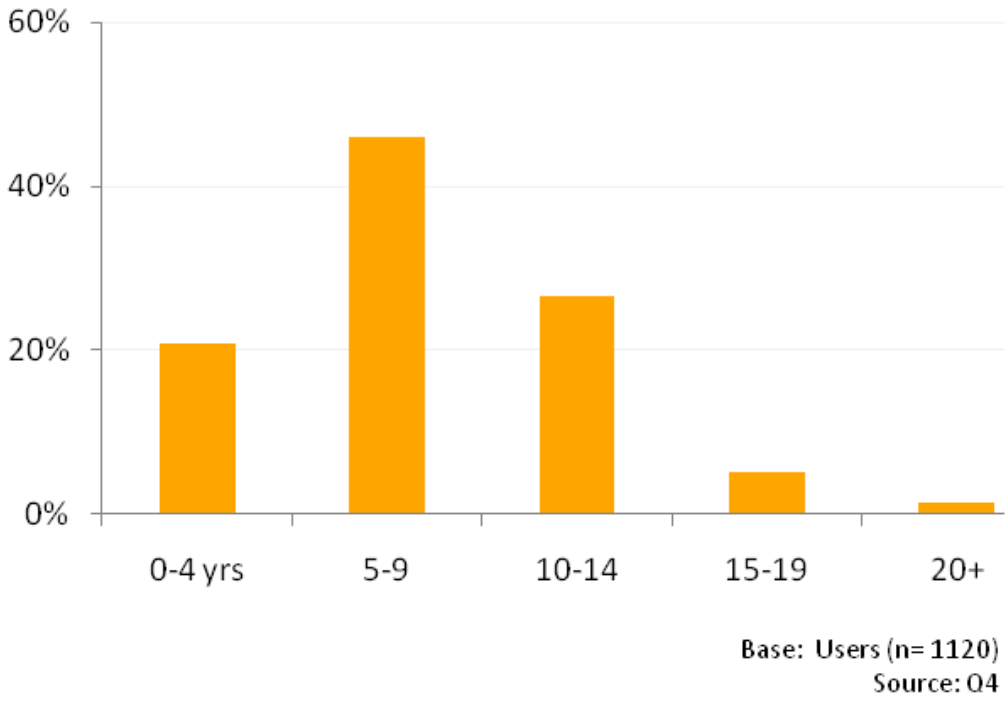

Figure 1: Years of Internet use amongst NZ Internet users

Two-thirds (66%) of users with a connection at home have broadband, compared to 31% with dial-up – low on the international scale because of NZ's difficult topography. New Zealanders tend not to leave their computers on all the time. 50% of users always shut down their computer when not using it.

Content Creation

At least weekly, 21% of users download or watch videos, 29% download or listen to music on the Internet, and 17% play games online. People under 35 years are more likely to use the Internet in these ways. A significant minority of users are active in posting different forms of material on the Internet. Over a quarter (27%) have posted messages on discussion or message boards, 34% have posted pictures, photos or videos, while just 8% have posted audio material. See Figure 2.

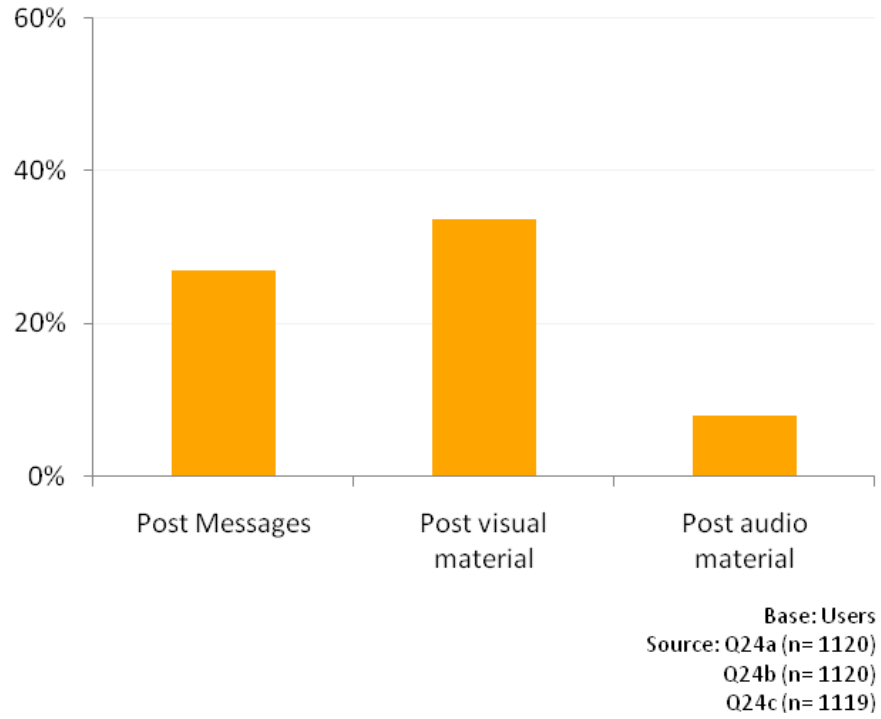

Figure 2: Proportions of users posting online

Reflecting patterns in posting activities, a significant minority of users are engaged in forms of online content creation: 13% of users maintain their own website and 10% keep their own blog. Keeping a blog is most popular in the lower income brackets.

Comparative ratings of the Internet

New Zealanders tend to rate their ability to use the Internet as quite good. Respondents rated their own ability on a 1–5 scale from poor to excellent. While many (44%) give themselves a relatively high rating, a significant minority (30%) rate their ability as not good. Users' confidence in their Internet ability stratifies according to their level of usage and ease of access, and by social factors such as their income level. The higher someone's income, the more confident they are with the Internet.

More than half of all respondents – both users and non-users – think the Internet is important (28%) or very important (26%). New Zealanders who use the Internet rely on it heavily. They were asked what the effect would be on their life if they lost all Internet access tomorrow. The majority (61%) think it would be a problem, while very few (2%) think it would make their life better. See Figure 3.

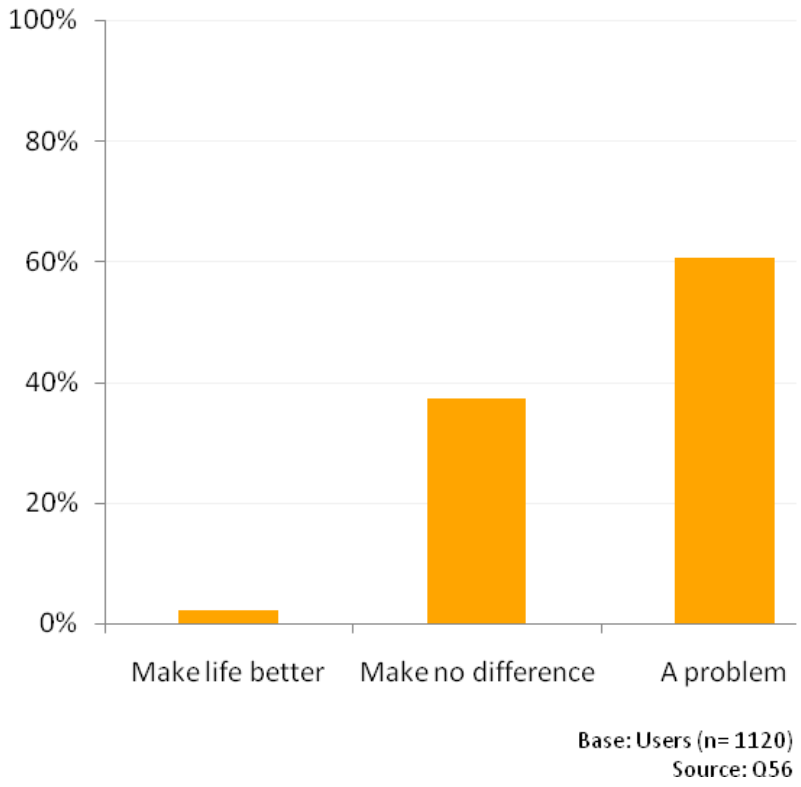

Figure 3: Effect on Internet users "if they lost all Internet access tomorrow"

The Internet takes its place as one activity amongst many in everyday life, such as watching television or spending time with people. Users spend less time online than they do with their families or friends or

watching television. People spend most of their time socializing with the family members they live with – half of users (52%) spend at least 20 hours a week with their families. Only 15% spend that amount of time with friends, and 24% spend it watching TV. Just 15% spend at least 20 hours a week on the Internet at home.

The Internet is rated highly as a source of information, above all the other sources surveyed. 61% of New Zealanders rate the Internet as important. This places the Internet as a significantly more important source of information than television (54%), newspapers (54%), and radio (46%). Strikingly, the Internet rates slightly higher as an information source than interpersonal sources such as family and friends (57%). This indicates that the Internet has drawn users away from more traditional media and other people as sources of information. See Figure 4.

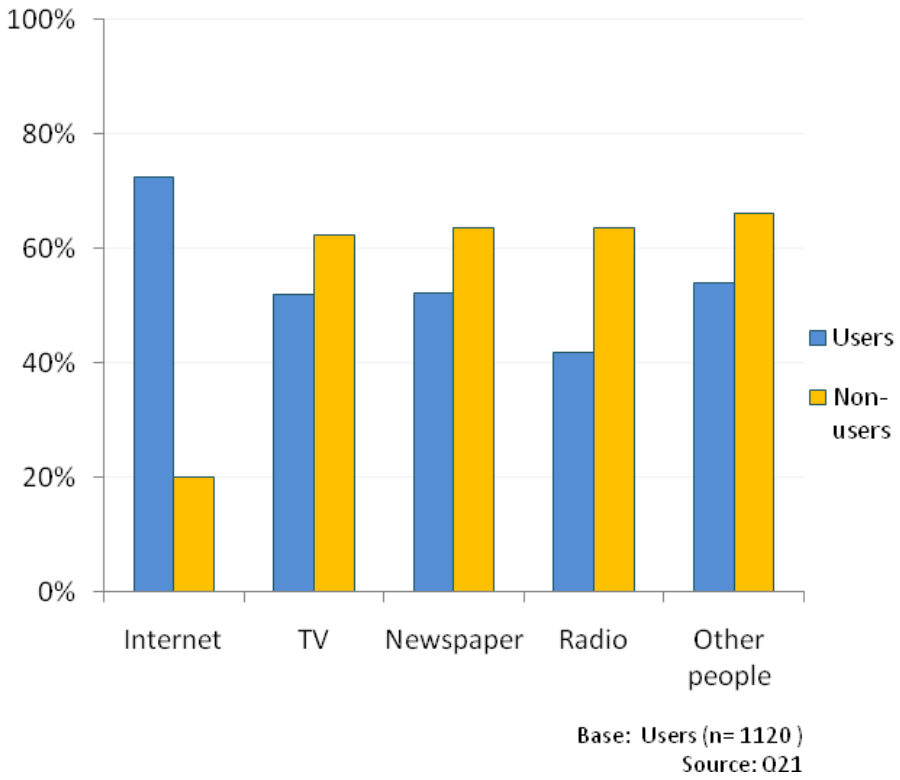

Figure 4: Comparative importance of media as an information source

New Zealanders value the Internet's importance slightly less for entertainment than for information: 41% rate the Internet as important for entertainment, compared to 36% who consider it not important. This finding is similar to the pattern of responses for newspapers as an entertainment medium. Both television (55%) and radio (53%) rate higher as a means of entertainment.

New Zealanders are divided over the reliability of information on the Internet. While only a few believe that all the information is reliable, 85% think that half or more is reliable. In contrast, 54% think that no more than half of the web information is reliable, although very few say that none of it is.

Human impacts of the Internet

Interpersonal contact

Socializing comprises a major use of the Internet: 77% of users check their email every day. At least weekly, 34% do instant messaging and 28% participate in social networking sites like MySpace or Facebook. Most users say that the Internet has increased their contact with other people, especially overseas (65%). Few believe there has been a decrease. However contact with people in one's own community is relatively unchanged. Most users say the Internet has increased their amount of contact overall with friends (64%) and family (60%), few say it has decreased. On the other hand, 22% report that since they connected to the Internet, they spend less time face-to-face with the family with whom they live, as shown in Figure 5. This finding is particularly strong for Pasifika people.

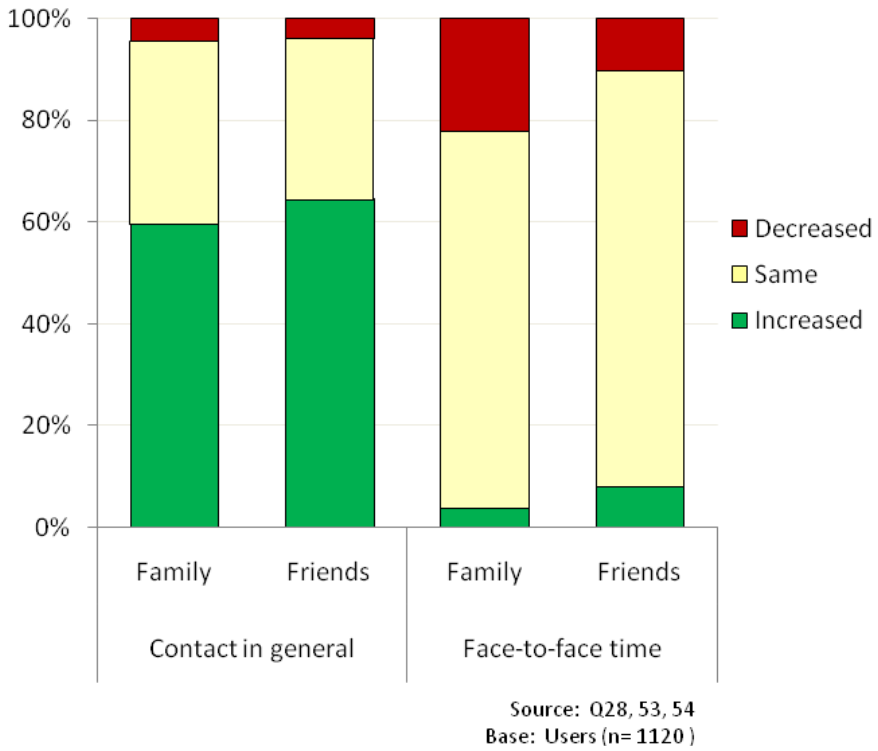

Figure 5: Comparison of effect of Internet on general and face-to-face contact time

Contrary to popular stereotype, Internet users spend much more time with their families than do non-users. A significant minority of New Zealand users have developed new social relationships online, some of which are followed up in face-to-face meetings. 25% report having made friends online, with 51% of these going on to meet this person face-to-face. Males are significantly more likely than females to go on to meet an online friend face-to-face.

Cultural issues

A strong minority of respondents believe the Internet has increased their sense of identification – for 34% their identification with New Zealand, and for 19% with their ethnic group. Maori or Pasifika language speakers tend to believe the Internet is helping keep their languages alive rather than the reverse, with about 50% in favour of this suggestion and only a third against it. See Figure 6.

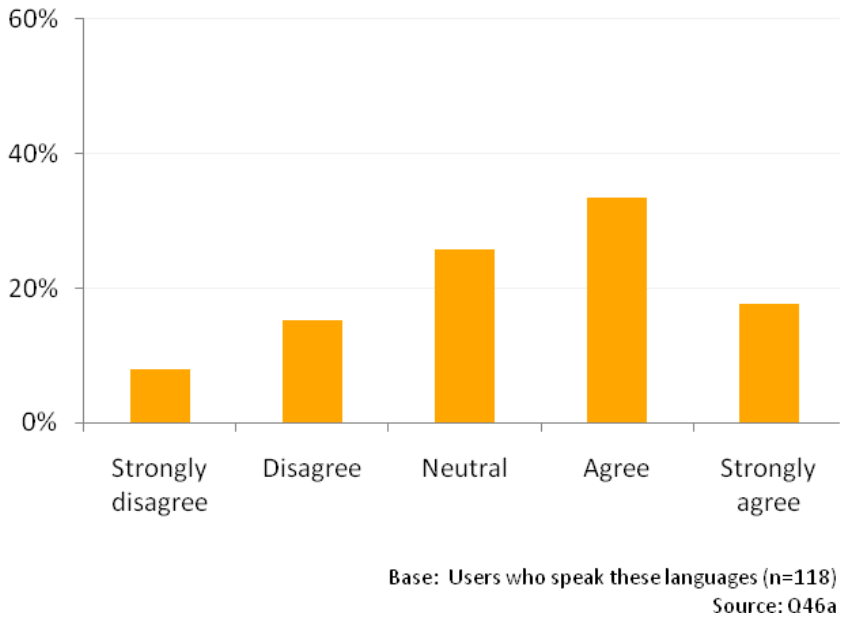

Figure 6: Perceptions of Maori and Pasifika users on whether the Internet helps keep their languages alive

Safety issues

The Internet opens users up to the possibility of a number of adverse consequences. The most common is the nuisance factor of spam emails, which 76% of users have experienced. Receiving a virus on to the computer is another widespread hazard, with 41% being affected. Credit card security online is a major popular concern, but in fact just 1.6% (18 users) believe that they have had their details stolen.

Concern about safety online for children is high in New Zealand. A very large proportion of households containing under-18s in them also have rules for their Internet use. Most prevalent (in 88% of households) is the rule not to give out personal information online. In most households children are also told not to meet up face-to-face with someone they have met online (80%), and not to chat online with strangers (81%). Most children are also told not to visit certain sites (75%). See Figure 7.

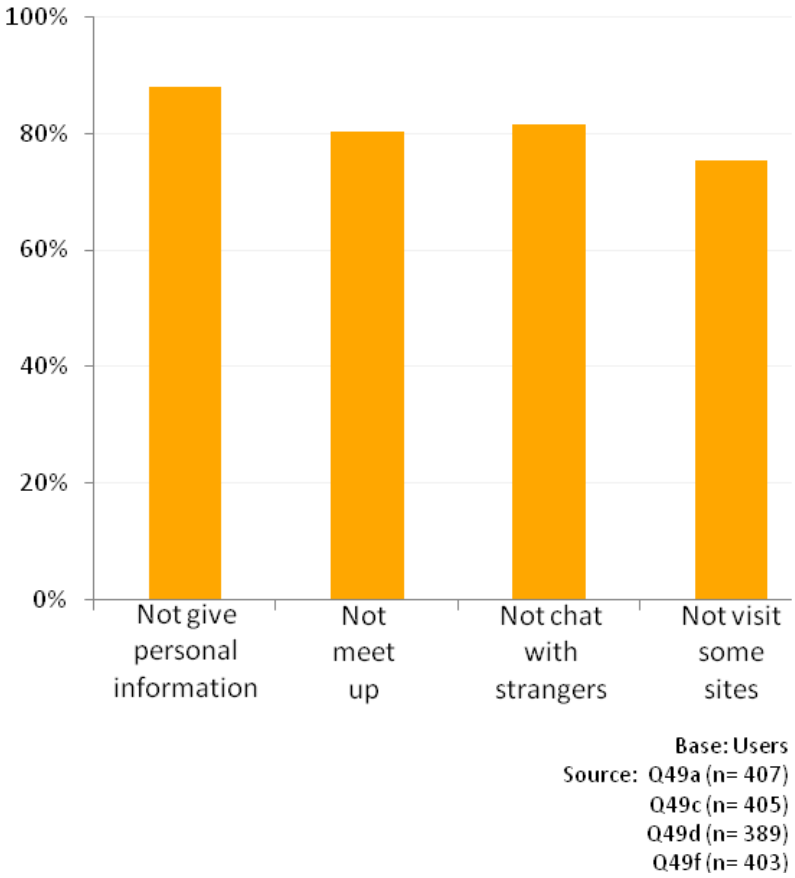

Figure 7: Proportion of user households with under 18s that have rules about Internet safety issues

Demographics

Gender

In the present study, gender makes little difference for most of the survey questions on Internet attitudes and behaviours. For example, Figure 8 below shows the almost identical profiles of self rated ability to use the Internet for both genders.

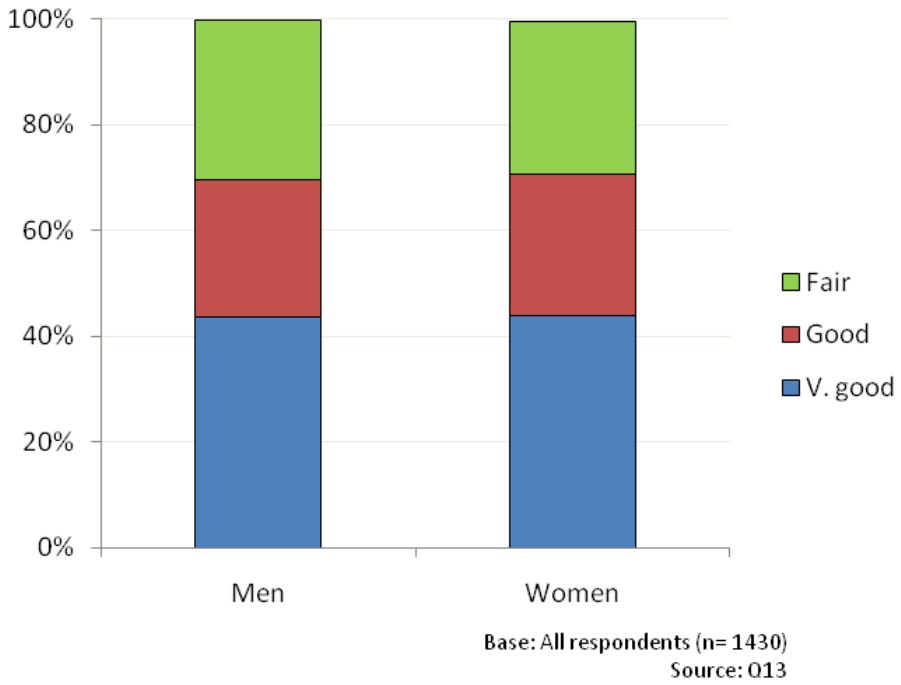

Figure 8: Self rated ability to use the Internet by gender

However, women are more likely to see other people as an important source of information (65% vs. 55%). Men tended to make friends online more often (30%) than women (20%), and to meet them much more often in person (61% vs 39%).

Women are more likely to feel that the effect of the Internet has decreased contact within the family (63% vs. 58%), and this is felt even more in relation to friends (70% vs. 60%). Women are also more likely to consider that contact with people in New Zealand and also contact with people overseas has increased with use of the Internet. Men are more likely than women to get information concerning government services online, and are slightly more likely to check facts online.

Age

Age was the most consistently differentiated dimension in the survey, producing many significant results. User status was age-graded from young to old, and many other questions produce a similar pattern – self-rated ability, hours on the Internet, use for information or entertainment, and online commerce. Some aspects of Internet behaviour such as content creation or social networking were much more prevalent among the under-30s. See Figure 9.

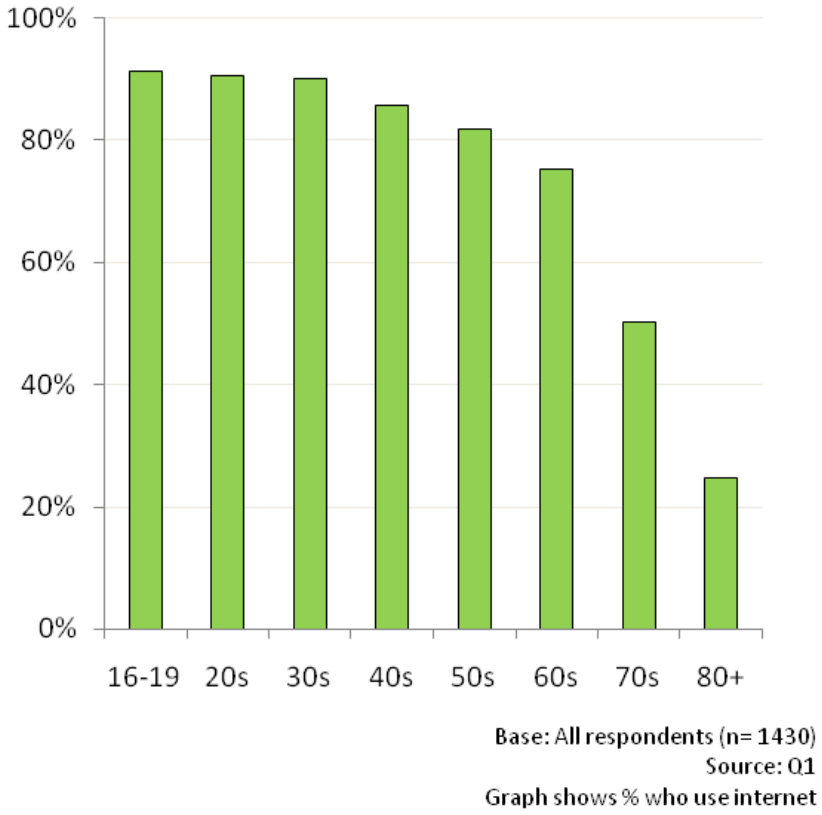

Figure 9: Proportion of population who use the Internet by age

However, the degree and onset of the fall-off with increasing age differed from question to question. Part of this phenomenon may be explained by successive generations having different experiences with this new technology. Although age is a key indicator of usage, especially for older people, for users some differences across age groups flatten out. An example of an activity with a flatter age grading profile would be email use, whereas social networking is steeply age graded from the 30-40 age group and older. It is notable that the time spent using the Internet by older people is not much lower than for other age groups, and their evaluation of the effects of the Internet tend not to be too dissimilar.

Other differences remain considerable. Older respondents are far less likely to be broadband users and tend to rate their ability to use the Internet far lower. Older users see this technology as far less central to their daily lives; they are less likely to access the Internet for information, and they use it less for entertainment (although there is a marked increase in online game playing for the over 60s).

Ethnicity

Drawing conclusions about the relationship between ethnicity and Internet use for the sample in this survey is complex.[3] What is clear is the vigorous engagement with the Internet by the Asian ethnic group[4], which is also echoed by those coded in the 'Other' ethnicity category. Asian participants are more likely to be users, and these users are more likely to use the Internet more frequently. Access to broadband is slightly higher amongst Asian New Zealanders and they rate their abilities as users more highly. Asian New Zealanders are also more likely to see the Internet as important in their daily lives and as an information source, and also to use the Internet for entertainment, content creation and socialising. See Figure 10.

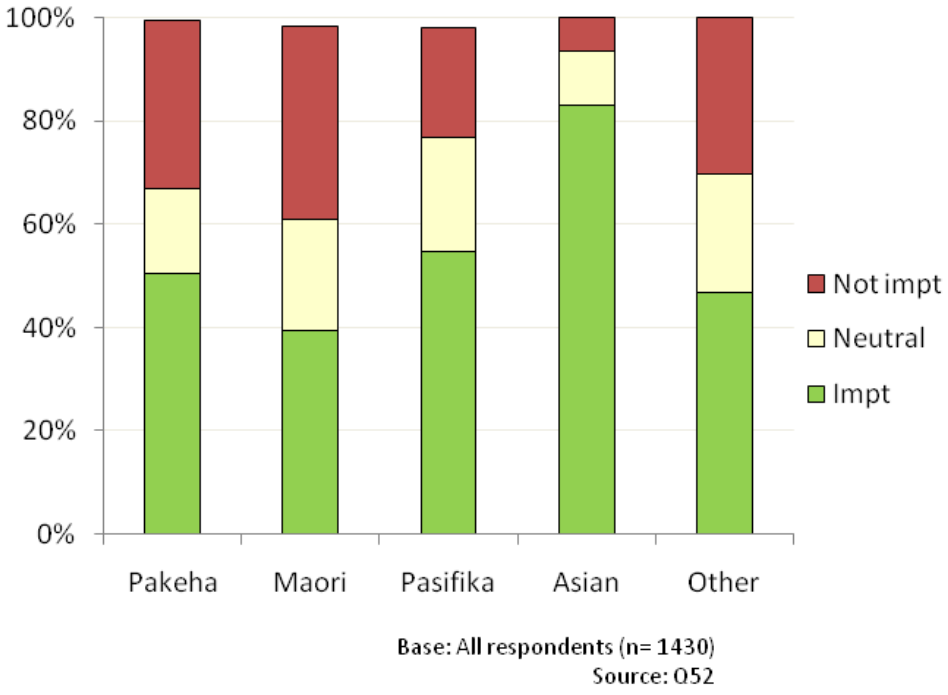

Figure 10: Importance of the Internet by ethnicity

[3] In New Zealand, as in other countries, ethnicity is now measured as a self-defined variable. While this avoids inappropriate labelling, it results in increased variability of ethnic identity. To further complicate the issue, ethnicity is a fluid concept, as ethnic and national identities are still emerging. In addition to challenges concerning coding categories, small sample sizes on some questions means that differences are sometimes not significant. There is also the strong possibility that factors other than ethnicity (e.g. income) interact with the surface pattern of the figures. This issue is being examined in ongoing analyses of the data.

[4] The New Zealand census definition of 'Asian' ethnicity, which we followed, is broader than some other international conceptions of the term. It refers to people whose ethnic group is identified with a country or region located in greater Asia, stretching from Central Asia in the west to Japan and Indonesia in the east.

The position of Maori and/or Pasifika respondents is more complex. Generally they tend to have less access to the Internet but if users, they tend to be more frequent users than Pakeha[5] across most types of online activity. This is particularly evident for online socialising where Pakeha are less active.

Geographic area

Some urban-rural differences were identified. For both users and non-users, living in a smaller settlement impacts negatively on access to broadband, self-rated ability, importance of Internet for information or for entertainment. There are few differences in terms of sociability (e.g. hours spent weekly with family of friends) or the importance of people as an information source.

Household income

The impact of income differences are clearly defined and usually stress the better access and higher usage of the Internet by those living in households with progressively higher incomes. This relationship shows in access to the Internet, access to broadband, self-rated ability, role of the Internet in daily life including for information and entertainment, its effect on relationships with family, and use of online services such as banking.

Discussion

A number of the findings of this survey are significant. One of the most striking is that gender appears to no longer play a major role in differentiating Internet access. This is in line with evidence that women are increasingly creating their own online spaces for discussion – a domain that was initially dominated by men (Silver, 2000). Whether the Internet provides a more level playing field for women, or for that matter any type of social group, has the potential to impact on real life situations. Although this is encouraging, further research is needed to explore the differences in the ways men and women use and view the Internet.

In relation to other potential digital divides, our findings suggest that Internet use is stratified according to age, with younger generations spending the most time on the Internet and using it in more dynamic ways than older generations. This is consistent with the data collected on Internet use by Statistics New Zealand (2006). For older generations the Internet seems to be more of an instrumental tool, important for checking facts, looking up information and sending email. For young people, the Internet is integral to their creativity and their socialising—it is woven into the fabric of their lives. To be sure these are generalisations, but nevertheless indicate an important pattern in the data.

[5] 'Pakeha' is the New Zealand term for New Zealanders of European origin.

The current survey also found that Asian New Zealanders are the most connected and active of all ethnic groups. While this is consistent with Statistics New Zealand findings, the pattern of usage in relation to Maori and Pasifika peoples differs. Where earlier research (Crump & McIlroy, 2003; Cullen, 2002; Maharey & Swain, 2000; Weaver, 2005) found significantly lower levels of Internet access and use amongst these two ethnic groups when compared to others, the current survey reflects a more mixed picture. Certainly there is cause for further exploration of the ways in which Maori and Pasifika peoples use and perceive the Internet.

Also consistent with earlier studies (Statistics New Zealand, 2006: Zorn, Li & Lowry, 2007), the current study found that income was strongly related to many aspects of Internet use and perception. However, the findings regarding reasons for non-use are instructive. Financial reasons were not prioritised by non-users as the reason for their non-use. Amongst this group, which includes 6% ex-users, a lack of interest, or perceived sense of usefulness is the most frequent reason given. This finding is indicative of a small but significant proportion of New Zealanders, for whom the Internet is relatively unimportant. Tracking whether this group grows or shrinks on an ongoing basis is an important task that the World Internet Project NZ will undertake.

It is clear that further research is needed in order to explicate the ways in which the social impacts of the Internet identified in this study will impact on different sectoral uses of the Internet. Government and voluntary sector progress towards minimising divides within society are potentially both assisted and hampered by the Internet. The potential for a richer level of interaction across an ever wider spectrum of people is significant. Ensuring that Internet technologies are used towards these ends rather than acting as a further barrier for disadvantaged groups is a challenge that must be faced.

Educators and researchers have been in the forefront of Internet based innovation in New Zealand. It will be important that the newer patterns of interaction made available by web 2.0 are capitalised on in order to enrich the quality of knowledge generation and exploration. As generational differences in Internet use and perception emerge, understanding the issues surrounding Internet safety remains important.

Commercial users of the Internet also need to take into account the emerging patterns of Internet use and attitudes. Demographic differences may be of particular interest in relation to marketing and recruiting strategies. The richness of communication available via the Internet also has the potential to offer strategic advantage in improving business processes.

The meaning of contact between people appears to be changing. The Internet in particular has not only increased contact between family and friends but also enabled new friendships particularly between people with similar interests which, in turn, have led to "real world" contact via phone and in person (Bargh & McKenna, 2004). According to Bargh and McKenna, various research projects have shown that the Internet

has strengthened neighbourhoods and communities such as greater involvement in voluntary organizations, politics and social-capital building activities. On the other hand, one in five New Zealand Internet users do feel as though they spend less time with the family they live with since connecting to the Internet. It will be important to track this finding over the next several years to determine whether such an attitude persists. Further detailed exploration of the changing nature of contact and friendship is also warranted.

Identity can be greatly influenced by membership and participation in Internet groups (Bargh & McKenna, 2004) or even, for that matter, simply through email contact or by merely browsing websites. As Urry states says, "the Internet can be seen as a metaphor for social life that is fluid, involving thousands of networks, or people, machines, programmes, texts and images in which quasi-subjects and quasi-objects mix together in new hybrid forms" (2003, p63). A number of questions in the current survey have important implications regarding identity whether this is related to gender, geographical location, age, ethnicity or income. The data, for example, indicate a realisation by many New Zealanders that the Internet can assist the maintenance of minority languages, cultures and identities. With New Zealand becoming a more multicultural society, such information will be invaluable to track in order to inform the public discourse regarding ethnic, cultural and national identity.

Conclusion

The Internet has been labelled as having a "dramatic" impact on society, and it is also "fast becoming a natural, background part of everyday life" (Bargh & McKenna 2004 p.574). This survey was the first contribution to New Zealand's involvement in the World Internet Project. It provides an indispensable baseline from which to track, in future surveys, how the Internet is affecting New Zealanders and the way they live. For the first time, questions that have only been previously addressed separately can be addressed in combination, within one study. With the subsequent rounds of the survey, this breadth and comprehensive scope will become longitudinally comparable. Additionally, the ability to compare with the findings of the international WIP partners is invaluable in answering questions about how the Internet is impacting New Zealand compared to other countries.

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Appendix 1

Sample design

- Random sample of 1200 people, aged 12 and up across New Zealand.
- Booster to census proportions through an additional 300 people, made up of Māori, Pasifika, Asian populations and 12–15–year age group. The sampling strategy incorporates over-sampling of these under-represented populations to ensure that adequate numbers of respondents will be available in these cells.
- Geographic areas and gender sampled by census quota.
- Exclusions: those without landlines, non-English speakers.

Achieved sample

The achieved sample for the 2007 survey was 1529. From this, under-16 year olds were excluded because this data was paired with older respondents in the same households. This was a consequence of an ethical requirement to interview an adult in the household before interviewing a respondent aged under 16. Records with at least one missing value among: age, gender, ethnicity and household size were also excluded, as these variables were all involved in the weight calculations. The resulting sample size in the WIPNZ international data set was 1430.

Weighting

The database was weighted to correct for departures from 2006 Statistics New Zealand Census proportions on several important parameters. The variables corrected for were: age (group), gender, ethnicity and household size.

Weighting was also done to incorporate the non-random booster samples with the initial randomly obtained component of the sample. This produced a much more robust database for the analysis. The potential overlap between the booster components of the survey was corrected for, on the basis of meshblock/region as this is how the booster populations were targeted. The sum of all the weights was scaled to match the sample size of 1430.

Confidence intervals

The precision of estimated weighted proportions can be assessed using indicative confidence intervals. For the all-respondents data set (n=1430) sample, 95% confidence intervals varied from approximately ±1.4% on small percentages (under 30%) and larger percentages (in the 30–70% range. For the Users subset (n=1121), 95% confidence intervals varied from approximately ±1.8% on small percentages (under 30%) and larger percentages (in the 30–70% range).