The Digital Divide in New Zealand: The position of Maori and Pacific peoples

John Gibson
Te Raupapa
Waikato Management School
Te Whare Wānanga o Waikato
University of Waikato
Private Bag 3105, Hamilton, New Zealand
[JKGIBSON@waikato.ac.nz]

Abstract

Information and communication technology plays an ever-growing role in economic, political and social life and those who are unable to access such technologies are increasingly disadvantaged. Hence, what has come to be known as the 'digital divide' is of considerable significance. Here, indicators of that divide as it affects Maori and Pacific Islands peoples in Aotearoa/New Zealand are presented and discussed.

Introduction

The concept of a 'digital divide' was first referred to, in a socio-economic context, to highlight the situation of groups which are unable to participate fully in society either because they lack access to information and communication technologies (ICT) or because they lack training in the use of these technologies. These technologies offer the promise of removing the barriers of distance that confront scattered populations and those who wish to communicate with them. They could, therefore, be of particular relevance to, for example, those Maori who live in rural areas of Aotearoa/New Zealand. The paradox is, however, that those very technologies which promise to reduce the effects of distance and inequality of opportunity also threaten to exacerbate them: those who could benefit most are often also those who are least likely to have access to information and communication technologies. As the Hon. Steve Maharey and the Hon. Paul Swain noted in press release on December 5th 2000 "in an information society, there is the potential for an inequitable distribution of ICT which exacerbates existing social and economic disparities" (Maharey and Swain, 2000).

Members of groups who may have been marginalized, in part because they have been unable to obtain the resources and skills demanded in a digital economy, may find their position even further eroded because they are unable to communicate using the increasingly dominant language of computers. In discussions of this issue, the emphasis has often been on a particular technology, the Internet. This is because access to a computer that is linked to various institutions and sources of information can confer powerful political and economic advantages in a modern society.

Attending to such evidence as there is in relation to the digital divide is critical if we are to monitor, and seek to improve, a situation which appears to be both persistent and ubiquitous. In the United States, for example, the digital divide between African Americans and whites is actually widening in relation to rates of Internet access and home computer ownership (Hoffman and Novak, 2000). Furthermore, the digital divide can occur in workplaces as well as in homes, something that is due, in part, to differences in occupational profiles. Thus, it has been noted that African Americans are significantly less likely than whites to have computer access at work, something

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that increases any disadvantage they have from the lower rate of ownership of home computers (Hoffman and Novak, 1998).

Mainly on the basis of overseas research (see Maharey and Swain, 2000), several groups in Aotearoa/ New Zealand have been identified as the most likely to be disadvantaged in terms of access to information technologies. These include Maori and Pacific peoples, those with few formal qualifications, the unemployed, and those in rural locations. My aim here is to focus on evidence from Aotearoa/New Zealand itself concerning the digital divide as it affects, in particular, Maori and Pacific Islands people.

I report here on evidence relating to four indicators of the digital divide:

- access to the Internet in homes;
- use of the Internet from homes or other locations;
- training in computer-related subjects provided by employers; and
- training in computer-related subjects obtained outside of workplaces.

These indicators are significant in their own right, pointing as they do to the ability to participate in an increasingly digital society. In addition, they have instrumental relevance in that, for example, they may be valuable in improving employability and job security (Gibson and Watene, 2001).

The data

The data used here come from three sources:

- The 2001 Census of Population and Dwellings (http://www.stats.govt.nz/domino/external/web/prod_serv.nsf/2001+Census+of+Population+Dwellings);
- The NetWatch Survey, which is regularly carried out by the market research company, AC Nielsen (http://www.acnielsen.com/products/reports/netwatch/); and
- The Education and Training Survey, which was a one-off survey, conducted by Statistics New Zealand as a supplement to the September 1996 Household Labour Force Survey (http://www.stats.govt.nz/domino/external/web/prod_serv.nsf/htmldocs/Education+and+Training+Survey+-+Information+Releases).

The 2001 Census required the heads of households to report whether their dwelling had a working telephone (including cell phones if they were in the dwelling most of the time), a fax machine, and/or Internet access. The question relating to telephone access had been used previously. However, the questions relating to fax machines and the Internet were new, reflecting both increased use and increased policy interest in these information and communication technologies.

The AC Nielsen NetWatch survey provides detailed information on Internet usage, both in terms of users and in terms of Internet sites that are visited. The information is gathered from a total of 3,000 people aged 10 years and over, who are surveyed each quarter throughout New Zealand. The results reported here come from the four quarters in the twelve months from July 2000 to June 2001. Of this combined sample

of 12,000, the number who self-identified as Maori was 1,300 and the number who self-identified as Pacific Islanders was 540. The results are weighted to population totals.

The Education and Training Survey was the first of its kind in Aotearoa/New Zealand. It is the only major survey of job-related training in the country. The survey asked respondents aged 15-64 about their participation in training that was either provided by an employer or obtained externally. A total of 13,988 people who had worked for wages or salaries in the 12 months prior to the survey answered the questions on employer-provided training. A total of 22,257 people answered the questions on external training. For each in-house and external training course (up to a maximum of four) the survey asked respondents about the main subject of the course: 'Computing' was included as a choice along with eight other broad subject areas.

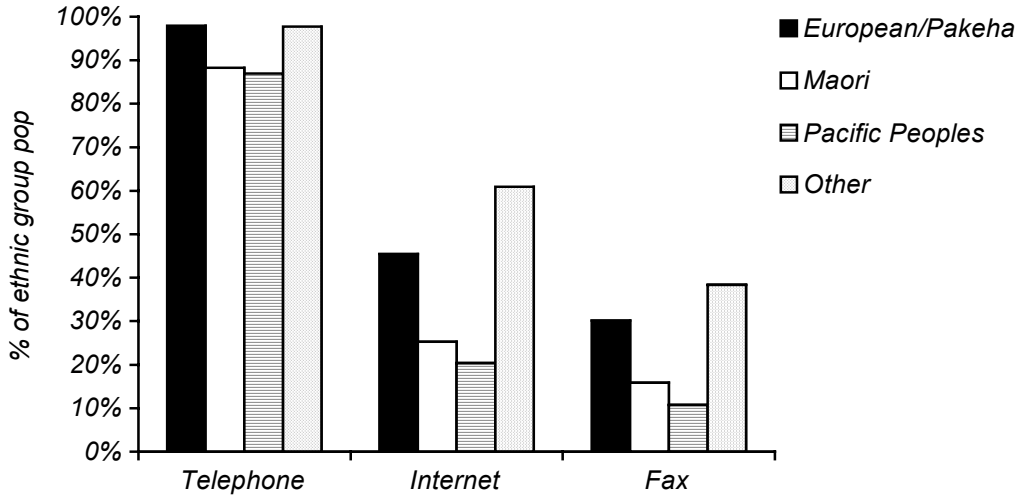
Findings

Findings relating to Internet access, Internet usage, employer-related training and external training are outlined below.

Internet Access

Information concerning access to the Internet and other communications technology is expressed in terms of population proportions, rather than in terms of dwellings. This is because households lacking access to these technologies may also have larger average family sizes. Presenting the results in relation to dwellings could, therefore, lead to an under-estimation of the size of the population without access. Where respondents affiliated themselves to more than one ethnic group, they are counted here in each of the applicable groups. This is a departure from the custom of assigning people with multiple affiliations to a single ethnic group on the basis of hierarchy, a custom that has been criticized by Gould (2001).

Figure 1: Access to the Internet and Other Communications Technology



Whereas 46 percent of European/Pakeha respondents live in dwellings with Internet access, only 25 percent of Maori respondents and 20 percent of Pacific Islands respondents are in net-accessible dwellings (see *Figure 1*). Furthermore, 61 percent

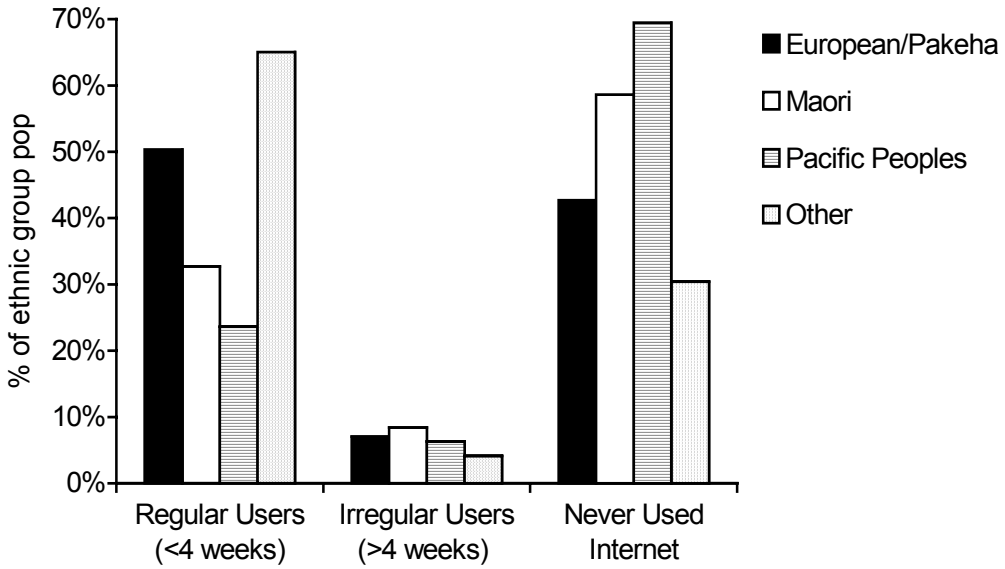
of households in the 'other' ethnic group category live in dwellings where the Internet is available.

These gaps in internet access parallel those for the two other forms of communication technology covered by the Census. The proportion of Maori and Pacific Islands respondents living in dwellings with a telephone is 10 percentage points lower than for the rest of the population. The gap in access to fax machines is even greater: 30 percent of Pakeha and 38 percent of people of 'other' ethnicity have a fax machine in their home compared with only 16 percent of Maori and 11 percent of Pacific Islands people.

Internet Usage

The NetWatch survey asked whether people had ever used the Internet and whether they had used it in the last four weeks. It did not discriminate in terms of location of use, that is, in terms of whether the Internet had been accessed from workplace, school, home or other location. In *Figure 2* below, those who replied that they had used the Internet in the past four weeks are treated as 'regular users'. According to the survey results, just under half (47.7%) of New Zealanders aged 10 years and over can be considered as regular Internet users.

Figure 2: Evidence regarding Regular and Irregular Internet Use



Whereas 50 percent of European/Pakeha respondents were regular internet users, only 33 percent of Maori respondents and 24 percent of Pacific Islands respondents were. In contrast, 'other' ethnic groups recorded a 65 percent usage rate. A small part of the gap in regular usage by Maori might be offset by their higher likelihood of being irregular users, at 8.4 percent compared to 6.6 percent for the rest of the respondents.

Employer-provided training

Workers who identified as Maori and Pacific Islanders were significantly less likely to have received employer-provided training in computing than were workers who identified as Pakeha or 'other' ethnicity. In each case, the gap in training rates (1.5 percentage points in the case of the Maori sample; 2 percentage points in the case of the Pacific Islands sample) is statistically significant.

Table 1: Training Rates in Computing amongst all Wage and Salary Earners

Ethnic Group	*% of wage and salary earners who received employer-provided training in computing in the previous year*
European/Pakeha	4.3%
Maori	2.6%
Pacific Peoples	2.1%
Other	4.7%
All Ethnic Groups	4.1%

The lower training rates in computing for Maori and Pacific Islands workers may be because either:

- their employer-provided training rate is lower overall;
  or
- employer-provided training focuses less on computer-related areas than is the case for other groups.

To distinguish between these two possible causes, a further analysis was conducted relating only to the 3194 workers who had received some form of employer-provided training in the 12 months prior to the survey. Of these, 17.5 percent indicated that at least one of their training episodes had computing as its main subject. In the case of Maori, the figure was 15.1 percent. For Pacific Islanders, it was 15.8 percent. In neither case is the difference statistically significant. What this indicates is that it is the lower rate of employer-provided training overall in the case of Maori and Pacific Islands employees that accounts for the fact that they are significantly less likely to receive workplace training in computing. While this survey did not ask about use of computers in the workplace, it is fair to assume that workers who are sent on computer training programs are more likely to be using computers that are those who are not given this training.

External Training

Whereas employer-provided training reflects, at least in part, the views of employers in relation to the profitability of training a particular worker, external training, although inevitably constrained by time and cost, reflects the choices of individual respondents. A comparison of the responses in each of these two categories (employer-provided training and external training) reveals a similar pattern.

Table 2: Training rates in computing amongst all respondents

Ethnic Group	*% of respondents who participated in external training in computing in the previous year*
European/Pakeha	2.9%
Maori	1.3%
Pacific Peoples	1.1%
Other	1.1%
All Ethnic Groups	2.6%

However, when the subject matter choices of the 2500 respondents who undertook external training are examined, an interesting difference between Maori and Pacific Islands peoples emerges. Of those Pacific Islands respondents who undertook external training, 25 percent had training in computing subjects (which is higher than the average (21 percent) across all ethnic groups. In contrast, only 14 percent of Maori who participated in external training chose computing-related subjects.

Thus, Maori respondents had a lower likelihood of learning about computing, both because they had a low participation rate in external training and because proportionately fewer of those who did participate in external training chose to study computing. For Pacific Islands respondents, it is the low overall external training rate in itself (rather than the choice of subject for external training) which is significant.

Summary and Future Directions

Focusing on Maori and Pacific Islanders, I have summarized here statistical data from Aotearoa/New Zealand which relates to the digital divide. What this summary indicates is that both groups have significantly lower levels of access to, and use of, information and communication technologies than do others in the country. Furthermore, training in the skills related to these technologies is also unequally distributed. These technologies play an increasingly powerful role in economic, political and social life. Consequently, where disadvantaged groups have a lower level of access to them, they are at risk of becoming further disadvantaged.

Although I have focused here solely on the digital divide as it currently affects ethnic groups in New Zealand, there are a broader set of issues that could be investigated in the future. First, there is the issue of content. It is not clear whether, or to what extent, the digital divide is due to language barriers or content barriers. Thus, for example, Taglang (2001) reports that 87 percent of documents on websites are predominantly in English. Thus, those people who do not speak English and those for whom English is not a preferred language may find the Internet less useful than do others. A second issue is the extent to which the types of pattern reported here are manifestations of other factors, such as average incomes and educational attainment, which also vary across ethnic groups. For example, in a survey of 1520 rural residents, Botha (2001) found that finance was a barrier to accessing information and communication technologies for 84 percent of Maori respondents, compared with only 65 percent of all respondents. More detailed multivariate statistical modelling would be needed to separate these factors out from the basic patterns across ethnic groups described here.

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