Research & Social Policy Team

Background Paper
No.5, 2002

The new economy revisited: an initial analysis of the digital divide among financially disadvantaged families

By

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Preface

The Research and Social Policy Team provides an internal research capacity to ensure that The Smith Family's programs are evidence-based. A general theme that integrates all of our research activities is *social capability*, the capacities of communities and individuals in them to draw from their own strengths and social capital and to move beyond the limitations of disadvantage. We also investigate a range of issues with national and community relevance, such as trends in financial disadvantage, education and social policy. In addition, we also contribute to policy debates in government and the community sector. This is an integral component of our vision for a more caring and cohesive Australian community.

The Smith Family's strategy for program development is one of collaborating with a range of stakeholders that are interested in working for societal change. As well as conducting our own research, therefore, we also form strategic alliances with other research centres and social sector organisations.

A range of publications makes our research findings and activities accessible to those who have either an interest in or a commitment to The Smith Family's agenda for societal change. **Background Papers** identify areas to be researched as well as provide important pre-evaluation information of Smith Family programs and activities. **Working Papers** present research findings that contribute to the development of evidence based social policy and initiate professional dialogue on critical research questions. **Briefing Papers** provide analysis of Smith Family programs and wider social policy issues in a more concise timely manner. A regular **E – Bulletin** publicises the Team's publications as well as provides current updates on TSF research and policy. These publications, as well as occasional reports, submissions and monographs are either produced in-house, the product of collaborative efforts with other researchers or arise from commissioned research. All publications are subject to a refereeing process.

We trust that you find the following Background Paper a worthwhile contribution to evidence based social research and to the development of social policy that unlocks opportunities and builds capacity for all Australians.

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Acknowledgments: We thank our colleagues Kirsten Buwalda, Martin Laverty, Rob Simons, Ciara Smyth, and Mike Wilson for comments and assistance. We also thank Peter Huta from the National Office of the Information Economy (NOIE) for comments and suggestions on an earlier draft of this paper. The usual disclaimers apply.

The production of this report was proudly supported by the Microsoft eMpower Australia Campaign.

Executive Summary

This paper presents new data on the access and usage of Information and Communications Technology (ICT), in particular, computers and the Internet, by households and children from financially disadvantaged backgrounds. The existence of unequal access and usage of ICT across the population – the 'digital divide', is compounding disadvantage for some, because having access to ICT is becoming so central to being able to fully participate in the economic, social, political and cultural spheres of society. This is the first of several publications that provides empirical data to complement previous conceptual work on the 'new economy' and the digital divide. This paper focuses on what has been termed the 'A' of the 'ABCs of the digital divide' – Access, Basic Training and Content. The data come from a survey aimed at collecting benchmark data on computer and Internet access and usage among students and families on The Smith Family's *Learning for Life* (LFL) program.

The main findings with respect to household access to ICT were as follows.

Overall household ICT access:

- Fifty-nine per cent of families had a computer at home. This suggests that LFL families are significantly below the national average, as almost three-quarters (74%) of all Australian households with dependent children have a home computer;

- Just under one-third (32%) of families were connected to the Internet at home. Again, this is below the national average for Internet access among households with dependent children (48% according to the ABS, and 58% according to a more recent study).

Household ICT access and sociodemographic variables:

- ICT access was not affected by whether the household was situated in a metropolitan or non-metropolitan area;

- In terms of ethnic/cultural background, Indigenous households and households from 'Pacific Islands' background were much less likely to have a computer or Internet access at home compared to other groups. Households where the parent/s were either Australian-born or born overseas but from English speaking backgrounds had similar levels of computer and Internet access to the overall mean. In contrast, households from non-English speaking background (NESB) (especially European) had higher levels of computer and Internet access;

- One-parent households had lower levels of access to a home computer (55%) and the Internet (28%) compared to two-parent households (66% and 39% respectively).

Household ICT access and socioeconomic variables:

- Households that were located in the most disadvantaged areas were less likely to have a home computer (52%) and home Internet access (27%), compared to households situated in the least disadvantaged areas (67% and 35% respectively);

- Households that owned or were purchasing their homes were more likely to own a computer (73%) than households that were renting privately (58%) or living in public housing (53%). Owners/purchasers were also more likely to have Internet access (43%) compared to those renting privately (33%) or in public housing (26%);

- Households whose main source of income was social security were far less likely to have a computer at home compared with those whose main source of income came from employment (58% v. 72%). Similarly, home Internet access was higher for households whose primary income was from employment (44%) compared to those on social security (31%);

- A striking finding was the strong association between the level of parental education and computer and Internet access. When comparing households where the parent/s had less than ten years of education with households where the parent was university educated, the rate of home computer access was 43 per cent for the former and 88 per cent for the latter. The rates for Internet access were similarly disparate (18% and 57% respectively). This finding is consistent with previous studies that have found education level to be the key driver of Internet access, followed in importance only by income level.

The main findings for ICT usage among LFL students were as follows.

Computer Usage:

- An overwhelming majority of students (98%) indicated that they used a computer. This is comparable to Australia-wide surveys. Most students stated that they use a computer 'sometimes' (33%) or 'often' (28%), with one quarter of students stating that they use a computer 'regularly';

- Older students use computers more frequently than younger students. None of the other demographic characteristics seem to be strongly associated with the frequency of computer use;

- Parental level of education seemed to have the most influence of the socioeconomic variables, with over one-third (35%) of students whose parents were university educated using a computer 'regularly' compared to only 23 per cent of students whose parents had not completed Year 10;

- Students whose parents' main source of income was from employment were more likely to state they used a computer regularly (29%), compared to students whose parents' main source of income was from social security (24%);

- Regular usage was also higher for students who lived in a house that was owned or being paid-off compared to those in private or public rental accommodation, and for those who lived in the more advantaged areas compared to those in more disadvantaged areas.

Internet Usage:

- Just over four-fifths of students (82%) indicated that they had used the Internet. The Internet was used less frequently than computers;

- Older students were significantly more likely to state that they had used the Internet, and use it more frequently, compared to younger students;

- Once again, the level of parental education was a key factor in whether students used the Internet. For example, students whose parents had a university degree were almost three times more likely to have ever used the Internet than those whose parents did not have a university degree.

Location of Internet Usage:

- Almost three-quarters (70%) of students that used the Internet did so at school. The next most common location for Internet use was at home (29%). This finding suggests the important role that schools have as a means of providing access and training in ICT for students of disadvantaged backgrounds;

- Using the Internet at school was also related to the level of parental education such that the higher the level of parental education, the more likely the student was to use the Internet at school.

Implications

- Considering the importance of having home Internet access for children's educational performance, the fact that almost three-quarters of students in this study did not use the Internet at home is of concern, particularly given that almost half of a comparable Australian population have home Internet access. Finding ways to increase the home access of low-income families to the Internet should therefore remain a policy priority for all sectors (government, private and nonprofit) aiming to bridge the digital divide;

- Previous studies have shown that the level of parental education is strongly associated with factors such as investment in resources that promote learning. Having access to the Internet and computers is now a key educational resource that influences educational outcomes. This has at least two further implications:

  i) The costs of these resources, as with other educational costs in general, are increasingly being pushed onto individual families. This further compounds the problem for families in financial disadvantage who often struggle to meet the basic costs of their children's education. It therefore reinforces the need for programs, such as *Learning for Life* that aim to assist families in financial disadvantage, to meet some of the costs associated with their children's education;

  ii) Policies aimed at bridging the digital divide should not only focus on reducing the cost of ICT but also on ensuring that programs that provide appropriate parenting support also emphasise the educational importance of having home access to computers and the Internet. This may mean that access and training programs should focus just as much on parents as they do with children. Once again, the dual-generation approach (focus on parents and children) of programs such as *Learning for Life* provide an appropriate framework within which to embed such initiatives.

- Finally, schools are important in closing or leveling the access gap, as most students use computers and the Internet at school. Reinforcing the role of parental education, however, the likelihood of students using the Internet at school also increased in line with the educational level of their parents. Greater research and policy attention needs to be given to the role of schools, teachers and parents in the 'ABC of the digital divide'.

Australia has another great dividing range. In the age of the information economy, modems – not mountains – separate the population (Manktelow 2001).

Introduction

The release of the 2001 Census figures this year has led to renewed concern among commentators that the gap between the 'haves' and 'have nots' with respect to the access and usage of Information and Communication Technologies (ICT), commonly referred to as the 'digital divide', is widening (Mathewson 2002). The Census revealed that nationally, an average of 42 per cent of Australians had used a computer at home in the week preceding the Census. With respect to the Internet, only 19 per cent of Australians had been on line at home in the week before the Census. These figures provide a reasonable proxy that illustrates that the 'digital divide' is still a real part of our landscape. These figures also seem to dampen some of the more optimistic views that were being expressed about the 'digital divide' as recently as a year ago. A paper one of us presented at a forum on the new economy, for instance, stated:

> … should we worry about it [the digital divide]? Is it not just a transitory phenomenon that will sort itself out in the medium to long-term? Like all new technologies, there will be some disparity of access, often due to cost initially, but as the costs of the technology become cheaper, it will be less of a problem. Evidence from the U.S. suggests that this may indeed be the case. Internet access among some disadvantaged groups that previously had low connection rates is now rising steadily. In Australia, the ABS projects that by the end of 2001…every second household in Australia will have home Internet access (Zappalà 2001:3).

While there is some evidence that an increasing number of people have access to ICT, this is occurring more slowly than predicted by some analysts. More importantly, the evidence confirms that the probability of households and children having home access to ICT is strongly related to socioeconomic status (SES), namely access increases with higher levels of SES. We know less, however, about the factors associated with home access and usage of ICT *within* certain SES groups.

This paper presents new data on the access and usage of ICT (computers and the Internet) by households and children from financially disadvantaged backgrounds. The next section outlines the concept of the 'digital divide' and the implications for people from financially disadvantaged backgrounds. In particular, there are significant educational implications of not having home access to computers and the Internet for children from financially disadvantaged backgrounds. An overview of the nature and source of the data analysed in this paper is then presented. This is followed by a discussion of the key findings in terms of the factors associated with the ownership and access of ICT, and the frequency and location of ICT usage. The final section concludes by outlining some preliminary implications of the findings for TSF's programs in this area as well as broader public policy.

The 'new economy' and 'digital divide' revisited

Ever since the 'dot coms turned into dot compost' the media's fascination with the so-called 'new economy' seems to have dissipated (Long 2001). In contrast to two years ago, the term 'new economy' has disappeared from the financial press and previous supporters have been quick to distance themselves from it. The business analyst Alan Kohler, for instance, a once 'new economy' convert, stated:

> [I]t may be time to face the truth about the new economy: there isn't one…the idea of a new economy, or an 'information economy' was manufactured by stockmarket promoters and sales people to rationalise very high prices for some stocks, but now

> that the telecommunications and internet investment mania is in the process of ending, perhaps we can dispense with the idea (Kohler 2000).

Earlier research conducted at The Smith Family had delineated two broad approaches or concepts of the 'new economy' (Zappalà 2000; Zappalà et al 2002). These are summarised in Tables A1 and A2 in the Appendix. The data presented in this paper primarily relates to the approach in Table A1, that which sees the 'new economy' in terms of companies and individuals involved in ICT.[1] While this approach has a narrower focus than that in Table A2, its impact on inequality and the disadvantaged is nevertheless real and significant.

Namely, the existence of unequal access and usage of ICT across the population – the 'digital divide', is compounding disadvantage for some, because having access to ICT is becoming so central to being able to fully participate in the economic, social, political and cultural spheres of society (Lee et al 2002). The advent and increasing sophistication of ICT has changed, and will continue to change, the way in which businesses, governments, communities and individuals operate and interact with each other. Some of the key spheres in which ICT is influencing participation (or lack thereof) in society include:

Economic participation

- Enabling people to search and apply for employment opportunities;
- Many jobs now involve having minimum levels of ICT competency as prerequisites.

Education & lifelong learning

- Opportunities for lifelong learning, especially for people who have not had experience of the formal education sector, are more easily accessed through distance and e-learning programs;
- Access to ICT is particularly important for 'online schools' for children living in remote areas;
- Studies show that students, teachers and parents feel that computers have a positive effect on learning (Ainley et al 2000);
- Recent research from the U.S. shows that the presence of computers and Internet at home are strongly and positively associated with the academic outcomes of school children, particularly children from disadvantaged backgrounds (Wilhelm et al 2002);
- Given the increasing use of ICT by students at school, there is a risk that teachers and schools operate on the assumption that all children have access to computers and the Internet at home, which may influence their expectations of students' work and their computer literacy at school (Mathewson 2002);
- Different levels of ICT access, support and skills between private and public schools may further exacerbate public versus private school disparities.

Access to services

- Many government services are being increasingly provided over the Internet, as are billing and banking services, which often offer discounts for paying or accessing services on-line. Using the Internet for these services not only saves time but is more cost effective. A recent study found that most people (73%) who incorporated the

[1] See Zappalà et al (2002) for a discussion of the second approach to the 'new economy' as summarised in Table A2.

Internet into their everyday lifestyle were able to reduce the time spent on errands by four hours per week, and many (40%) saved up to $30 per week (Centre for International Economics 2001).

Political participation & social inclusion

- Given the fact that the Internet is able to transmit information efficiently across geographical boundaries, it has the capacity to reduce some of the disadvantage associated with living in distant and remote locations;

- The Internet is becoming increasingly important for political participation and the democratic process, with several political movements or protests now occurring via email campaigns. Similarly, most political parties and several political representatives now use the Internet as a key means of communication with the electorate and constituents (Curtin 2001);

- Many cultural/leisure activities now involve or benefit from access to the Internet, in fact the Internet is also 'promoting social inclusion of traditionally marginalised groups such as the elderly, disabled and women with children' through facilitating communication, access to support networks (Robbins 2000).

These issues do not only affect the lives of individuals who happen to be on the wrong side of the divide, but they affect society as a whole (Perri 6 with Jupp 2001). A 'technology' gap will have:

- Economic consequences – Australia will have lower productivity if fewer people have the opportunity to exploit the benefits of ICT (Lee et al 2002); and

- Social consequences – Australia will be less cohesive if the 'new' or 'information' economy/society becomes the preserve of an exclusive minority (Zappalà et al 2002).

Furthermore, while having access to the Internet can bring several benefits, it is important to remember that the 'digital divide' is more than just a simple division between those with *access* to the physical hardware of the new ICT and those without. The concept needs to also encompass the broader social environment within which technologies operate. As one recent critic of the 'digital divide' label has argued:

> [A]ccess to ICT is embedded in a complex array of factors encompassing physical, digital, human, and social resources and relationships. Content and language, literacy and education, and community and institutional structures must all be taken into account if meaningful access to new technologies is to be provided (Warschauer 2002:6).

A simple but useful concept that encapsulates this idea is what has been termed the 'ABCs of the digital divide' – Access, Basic Training and Content (Wilhelm et al 2002:2). It recognises that the divide is not solely about physical access to ICT, but also ensuring that people have the requisite resources and skills to use the technology appropriately. The data in this paper shed most light on the access issue. Another report details the findings of TSF's Computer Clubs that while also aimed at providing access, have a focus on training and content (see Smyth & Zappalà 2002). Some of The Smith Family's programs aimed at addressing the ABC of the digital divide are also highlighted in Appendix 2.

ICT Access and Usage in Australia

Before we move onto examining the data in more detail, it is useful to briefly review some of the key studies and surveys that have sought to identify the extent of ICT usage by individuals in Australia as well as the factors that may be driving the differential access. The

findings from four recent studies are summarised in Table 1, although comparisons are difficult because of the different sample sizes and timeframes of each particular survey.

The most reliable of the four is the survey conducted by the Australian Bureau of Statistics (ABS) in November 2000 (ABS 2000a). It showed that just over half (56%) of all households in Australia had a computer in their home, and just over one-third (37%) had home Internet access. These figures represented a sharp increase in Internet access, as 1998 estimates by the ABS suggested that only one in eight households were connected to the Internet. Furthermore, on the basis of trends at the time, the ABS projected that every second household in Australia (or 50%) would have home Internet access by the end of 2001.

Table 1 Recent Australian data on Household ICT Access

Study	**ABS (2000a)**		**NOIE (2002)**		**Casson et al (2002)**		**Ericsson (2002)***	
Time of survey	Nov. 2000		Sept 2001		2000-01		May 2002	
Sample	3200 households		500 households		1252 households		2000 individuals	
	% Com.	*% Inter.*	*% Com.*	*% Inter.*	*% Com.*	*% Inter.*	*% Com.*	*% Inter.*
All h'holds	56	37	64	52	-	44	76	68
With children	74	48	-	-	-	58	-	-
No children	46	32	-	-	-	36	-	-
Household income			-	-	-		-	-
$0 -$49K	37	21	-	-	-	22-47	-	-
>$50K	77	57	-	-	-	67	-	-

Note: * Cited in Connors (2002)

Table 1 suggests the ABS projection was accurate, as data collected in September 2001 by the National Office for the Information Economy (NOIE) estimated that almost two-thirds (64%) of Australian households owned or leased a computer, and just over half of all households (52%) were connected to the Internet (NOIE 2002). The other two studies listed in Table 1 are less comparable as their samples were skewed towards people in capital cities in the case of Ericsson, and towards rural areas in the other (Casson et al 2002). The most recent study, based on a sample of 2000 individuals across five state capitals, conducted by Ericsson Australia, found that three-quarters of Australians have a PC at home and almost 70 per cent have home Internet access (Connors 2002). Overall, these surveys confirm that on a comparative basis, Australia ranks highly (3rd in the world) in adopting 'Information Economy enabling technologies' (NOIE 2002; DITR 2002).

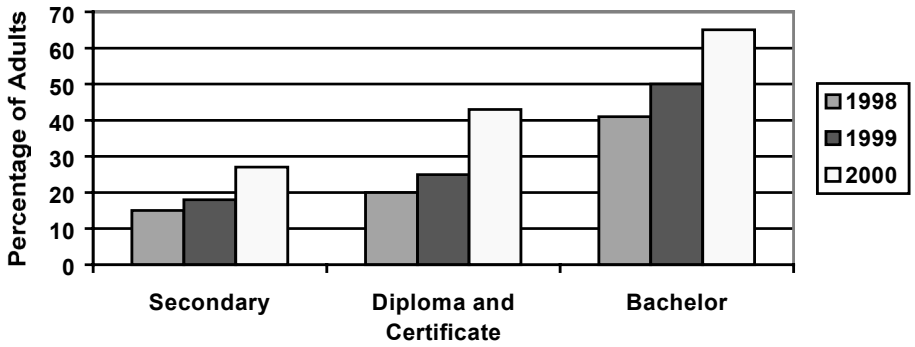
Despite these figures that suggest that Australia is a high consumer of ICT, it is well documented that the pattern of this consumption is not spread evenly across the population (Zappalà et al 2002). In brief, the 'usual suspects' of disadvantage are involved in the 'digital divide':

- *Income*: People's level of income is an important factor in determining who benefits from the new technology. In 1998/99, for instance only 6 per cent of households on incomes less than $19,000 were connected to the Internet compared to 47 per cent of those on incomes of more than $84,000 (Hellwig & Lloyd 2000). In 2000 the disparity between income groups was still relatively high, with income earners in the top bracket 3.5 times more likely to have an Internet connection at home than those in the lowest bracket. The ABS survey found that households on incomes of $50,000 or greater are twice as likely as households with incomes less than $50,000 to have a home computer and Internet access (ABS 2000a). A key reason why low-income households with computers do not have Internet access is due to the costs of connection (Curtin 2001).

- *Level of education*: The study by researchers at the National Centre for Social and Economic Modelling (NATSEM) found that educational attainment of an individual was

a stronger predictor of having home computers and the Internet than income (Hellwig & Lloyd 2000). Figure 1 shows that individuals with a university education were 2.5 times more likely to have home access to the Internet than those without.

Figure 1 Percentage of adults with Internet access at home by educational qualification, 1998-2000



***Source*: Hellwig & Lloyd (2000:19)**

- *Geographic location*: Although the connection between the 'urban-rural divide' and the 'digital divide' is subject to debate, where a person lives does appear to influence their home access to the Internet. While the proportion of adults with Internet access at home in metropolitan areas grew from 24 to 30 per cent between 1998 and 1999, the corresponding increase in non-metropolitan areas was from 15 to 18 per cent (Hellwig & Lloyd 2000). The latest figures from the ABS suggest that the gap between city and country in terms of Internet access is decreasing, with 40 per cent of all metropolitan households having access compared to 32 per cent of all households in non-metropolitan areas. Furthermore, once studies control for the influence of education and income, the influence of geographic location diminishes. This suggests that the observed differences between metropolitan and non-metropolitan areas is a function of the different socioeconomic characteristics of metropolitan and non-metropolitan populations, in particular, the lower income and qualification levels of the latter. As one researcher has stated, 'Geography may not determine it [Internet access], but there is obviously a geographical dimension to it' (Curtin cited in Manktelow 2001; Curtin 2001).

- *Age*: Adults aged over 55 are significantly less likely to have Internet access compared to younger groups in the population (ABS 2000a).

- *Gender*: The role of gender is unclear, with some studies finding that females have lower take-up rates for the Internet than males (ABS 2000a) while other studies find that gender plays little to no role in access (NOIE 2002).

- *Occupation*: Blue-collar workers are less likely to be connected to the net at home compared to other occupational groups after controlling for income and qualifications. Those in low paid jobs are also less likely to use a computer or access the Internet at work (Hellwig & Lloyd 2000).

- *Family type*: Households with children are more likely to have home computers and Internet access compared to households without children. One-parent households, however, are far less likely to have access to the Internet (26%) than two-parent households with children (51%) (ABS 2000c).

- *Indigenous status*: Indigenous Australians are less likely to have home computers and Internet access compared to non-Indigenous Australians.

Most of these findings confirm that people from higher socioeconomic backgrounds have greater access to ICT compared to those from lower socioeconomic backgrounds. Another important dimension is the factors that may influence ICT access and usage *within* certain demographic and socioeconomic groups. In particular, what factors are associated with home computer and Internet access for children from low socioeconomic backgrounds? There is little research that has specifically addressed this particular issue (see Funston & Morrison 2000 for an exception).

Background to the data

The data for this section come from administrative records of students and families on The Smith Family's *Learning for Life* (LFL) program. The LFL program aims to increase the participation of children from financially disadvantaged families in the educational process by the provision of financial and educational support (see Zappalà & Parker 2000; Smyth et al 2002 for an overview of the program). As part of developments and enhancements to the program aimed at increasing access and usage of ICT by students, a small survey was included as part of the annual communication to families in October 2001. The main aim of the survey was to collect benchmark data on computer and Internet access and usage among LFL students. Although the survey was sent to parents in 5,850 households, they were asked to pass on the survey/s to their child/children to complete. Of the total students in the population (11,948), 7,226 completed the surveys, giving a response rate of 61 per cent. Each survey contained a unique student code to enable responses to be matched to background information contained in TSF's Client Services Management Information System (CSMIS) database.

Following data entry and the matching of responses to the relevant background information, several steps were taken to clean the data and arrive at the two final samples used for this analysis. First, the 7,226 student responses were screened for internal inconsistencies. For instance, 352 cases were removed because the student had answered 'no' in response to the question 'Do you ever use the Internet?' but also answered 'sometimes' 'often' or 'regularly' to another question on how often they use the Internet. This left a final student database of 6874 students.

Second, given that almost 85 per cent of students had siblings who also took part in the survey, a database of 'households' that responded was created.[2] This was particularly important for examining the extent of household access to ICT. Responses to questions such as 'Do you have a working computer in your home?' for instance, would be misleading if analysed on an individual basis, since two siblings answering 'yes' to this item does not mean that there are two households with a computer. The 'household' database allows the level of analysis to be the 'family unit' rather than the individual student.

Third, creating a household database enabled us to further filter and screen the sample so that inconsistent responses between siblings from the same household could be removed.[3] This left a final sample of 3404 households. This represents 58 per cent of the total number of households that were on LFL at the time the data were collected. Fourth, as is discussed below, the respondents and non-respondents did not differ greatly in terms of the key characteristics (see also Appendix 3).

[2] Of the 6,874 students 5,818 were members of families that had more than one child on LFL.

[3] There were 114 households where the response of one sibling was inconsistent with that of another sibling for the question 'Do you have a working computer in your home'. This corresponded to 266 individual cases that were deleted from the database. There were 187 cases where the question 'Where do you use the Internet?' – 'At home' was endorsed by one sibling and not by the other. These cases were not deleted, as it is possible that one child used the Internet at home while their sibling did not.

Profile of the LFL students and families in the study

Table 2 presents the characteristics of the sample by a range of socio-demographic and socioeconomic characteristics:

- Almost half (47%) of the students were in Years 7-10 with just under one-third in Years 4 to 6. There was no difference between respondents and non-respondents in terms of student age.

- There was an even split between male and female students. Once again, there was no difference between respondents and non-respondents in terms of student sex.

- Most of the students that responded (59%) lived in non-metropolitan areas.[4] Students who lived in metropolitan areas were slightly less likely to have responded (46% of non-respondents came from metropolitan areas compared to 41% of respondents).

- Over two-thirds (68%) of students lived in areas that were below the median level of locational disadvantage in Australia as measured by the Index of Relative Socio-Economic Disadvantage (IRSED). The IRSED is one of five Socio-economic Indexes for Areas (SEIFA) derived from the 1996 Census of Population and Housing. The indexes relate to socio-economic aspects of geographical areas. The IRSED is derived from features such as low income, lack of English language fluency, low educational attainment and high unemployment. A low score on this index indicates that the area has high levels of low-income families and individuals in unskilled occupations with little training. The percentile indicates the relative extent of disadvantage compared with other communities in Australia. For example, living in an area that scored in the bottom decile indicates that the families in the area are on average worse off than 90 per cent of the rest of the families in Australia. An IRSED score was calculated for each case in the sample based on their post-code and then converted into percentile bands. There was no difference between respondents and non-respondents in terms of this indicator.

- The majority (59%) of students that responded came from one-parent families. Students from one-parent families were also less likely to have responded (66% of non-respondents came from one-parent families).

- Over two-thirds (69%) of the students have parents with ten or less years of education (i.e. Completed up to or less than Year 10).[5] There was no difference between respondents and non-respondents in terms of level of parental education.

- Approximately five out of every six students were from an English speaking background. There was little difference between respondents and non-respondents in terms of ethnic and cultural background.

- An overwhelming majority (90%) of the students came from households where social security was the main source of income. There was no difference between respondents and non-respondents in terms of this indicator (91% of non-respondents were also from households where social security was the main source of income).

[4] Geographic location coding was based on the household's post-code and refers to the classification used by Australia Post – Capital city post-codes are classed as Metropolitan and all other areas as Non-metropolitan.
[5] Refers to the education level of the highest educated parent.

Table 2 Socio-demographic characteristics of survey sample

Student Characteristic	N [a]	%
Year level at school		
1-3	886	13
4-6	2023	30
7-10	3214	47
11-12	701	10
Total	6824	100
Sex		
Male	3407	50
Female	3461	50
Total	6868	100
Location		
Metropolitan	2800	41
Non-metropolitan	4074	59
Total	6874	100
Level of locational disadvantage (IRSED)[b]		
Bottom 10%	1273	19
10-25%	1484	22
25-50%	1874	27
50-75%	1432	21
75-90%	570	8
Top 10%	195	3
Total	6828	100
Family type		
One-parent	3933	59
Two-parent	2787	41
Total	6720	100
Parental education[c]		
<Year 10	1183	22
Year 10	2592	47
Year 12	698	13
TAFE/Other post-secondary	608	11
University degree	378	7
Total	5459	100
Ethnic/cultural background[d]		
Anglo-Australian	5348	79
Aboriginal/Torres Straight Islander (ATSI)	100	1
English speaking background (ESB)	201	3
Europe	332	5
Asia	138	2
Middle East & Africa	517	8
Central & South America	99	1
Pacific Islands	68	1
Total	6803	100
Main source of income		
Social security	5980	90
Employment	630	10
Total	6610	100
Housing type		
Public rental	2986	44
Private rental	2388	36
Owns/purchasing house	1356	20
Total	6730	100

Notes:
[a] Total number of cases vary for each variable due to missing data.
[b] Percentiles indicate level of disadvantage relative to Australia as a whole. For example, 10-25% encompasses areas that are better off than at least 10% of Australia and at most 25% of Australia. An area falling in the 50-75% band is more advantaged than one falling in the 25-50% band.
[c] Education level of most highly educated parent.
[d] Refers to both first and second generation Australians.

- Just under half of the students (44%) lived in public housing, just over one-third (36%) were from families that lived in privately-rented accommodation and one-fifth were from families that either owned or were paying-off their own homes. Students who lived in public housing were less likely to have responded (51% of non-respondents), while

those whose parents owned or were paying off their own homes were slightly more likely to have responded (20% compared to 13% of non-respondents).

Key Findings

Home access to computers & the Internet

Overall, using the household sample, 59 per cent of families had a computer at home. At first, this appears to be a higher level of ownership than that revealed by the ABS survey cited in Table 1. A more appropriate comparison, given that our sample comprises only households with school-aged children, would be with computer ownership among households *with dependent children under the age of 18* who have access to a computer. This suggests that LFL families are significantly below the national average, as almost three-quarters (74%) of all Australian households with dependent children have a home computer.

Table 3 Home computer and Internet access (LFL Households)

	Computer		Internet	
	%	N	%	N
Yes	59	2006	32	1085
No	41	1398	68	2319
Total	100	3404	100	3404

Table 3 also shows that just under one-third (32%) of families were connected to the Internet at home.[6] Once again, while this is not too dissimilar to the level of home access revealed by the 2000 ABS survey (where 37% of households had access to the Internet), making the more meaningful comparison to households with dependent children reveals a greater level of disparity, as 48 per cent of all Australian households with dependent children under the age of 18 had home Internet access. Furthermore, it is also below the 58 per cent of households with children that had home Internet access revealed by the more recent CLC survey (see Table 1).

Given that our sample comprises households that are all financially disadvantaged, it is not surprising that we would find lower levels of home access to computers and the Internet compared to families in the wider population. The remainder of this section examines the extent to which certain sociodemographic and socioeconomic factors are associated with home access of computers and the Internet within this group of financially disadvantaged households.

ICT home access and sociodemographic variables

Table 4 shows the proportion of households that had computer and Internet access at home according to several sociodemographic variables. Several points stand out:

- The geographic location of the household had no influence in terms of having a home computer, and households in metropolitan areas were only slightly more likely to have Internet access compared to those in non-metropolitan areas. This finding may seem to go against the commonly held view that the 'digital divide' has a spatial dimension (Curtin 2001). Studies that have used multivariate techniques in examining Internet access, however, have found that the influence of geography disappears once variables such as education level and income are controlled for (Hellwig & Lloyd 2000). Given that this sample comprises only low-income households, these initial findings

[6] This figure was based on responses that endorsed the option 'At home' to the question 'Where do you use the Internet?' This proxy may underestimate the level of household access as there may be cases where a household had the Internet at home but the parent/s did not allow their child/children to use it.

suggest that geographic location per se is not a significant influence with respect to access to ICT (see also Curtin 2001 on this point).[7]

Table 4 ICT home access and socio-demographic variables

Characteristic	Computer (%)	Internet (%)
Overall distribution	59	32
Location		
Metropolitan	59	34
Non-Metropolitan	59	30
Ethnic Background		
Australia	58	30
ATSI	25	15
ESB	50	30
Europe	71	53
Asia	81	43
Middle East & Africa	64	42
Central & S. America	66	43
Pacific Islands	28	8
Family Composition		
One Parent	55	28
Two Parent	66	39

- The ethnic/cultural background of the household seems to be associated with levels of ICT access. While caution is needed with respect to some groups given the small cell sizes, Indigenous households were much less likely to have a computer or Internet access at home compared to other groups, with the exception of households from 'Pacific Islands' background. Households where the parent/s were either Australian-born or born overseas but from English speaking backgrounds had similar levels of computer and Internet access to the overall mean. In contrast, households from non-English speaking background (NESB) (especially European) had significantly higher levels of computer and Internet access.

- Finally, family structure seems to be associated with access levels, with one-parent households having lower levels of access to a home computer (55%) and the Internet (28%) compared to two-parent households (66% and 39% respectively).

ICT home access and socioeconomic variables

Table 5 shows the percentage of households with home computer and Internet access according to a range of socioeconomic variables. It suggests that all these variables were associated with the level of ICT access, although some variables appear to have a stronger association than others.

[7] A possible reason for the apparent lack of a geographic location effect is the coding system used (see note 4), which does not allow a sharper differentiation of the 'non-metropolitan' category. This category includes, for instance, all areas other than a capital city (e.g. cities such as Newcastle in NSW). This was one reason that post codes were linked to IRSED scores, thus providing another proxy for geographical location.

Table 5 ICT home access and socioeconomic variables

Characteristic	Computer (%)	Internet (%)
Overall distribution	59	32
Level of Disadvantage		
Bottom 10%	52	27
10-25%	59	30
25-50%	59	32
50-75%	60	33
75-90%	67	40
Top 10%	67	35
Housing Type		
Public Rental	53	26
Private Rental	58	33
Owns/purchasing	73	43
Main Source of Income		
Social Security	58	31
Employment	72	44
Parental Education		
< Year 10	43	18
Year 10	58	31
Year 12	68	42
TAFE/Other Post-secondary	68	38
University degree	88	57

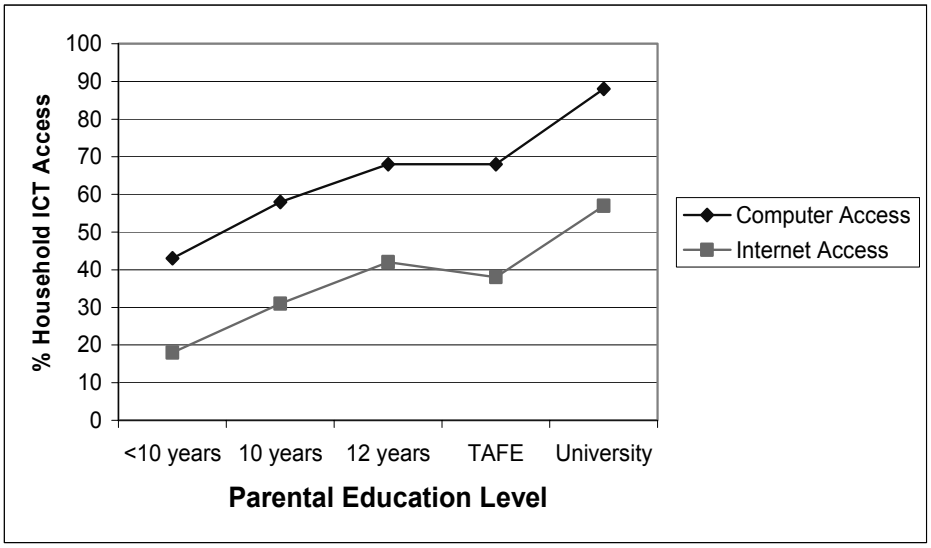
- Not surprisingly, households that were located in the most disadvantaged areas based on the IRSED, were less likely to have a home computer (52%) and home Internet access (27%), compared to households situated in the least disadvantaged areas (67% and 35% respectively).

- In terms of the type of housing that families lived in, households that owned or were purchasing their homes were significantly more likely to own a computer (73%) than households that were renting privately (58%) or living in public housing (53%). Owners/purchasers were also more likely to have Internet access (43%) compared to those renting privately (33%) or in public housing (26%).

- A household's main source of income was also associated with home computer ownership and Internet access. Households whose main source of income was social security were far less likely to have a computer at home compared to those whose main source of income came from employment (58% v. 72%). Similarly, home Internet access was higher for households whose primary income was from employment (44%) compared to those on social security (31%).

- A striking finding was the strong association between the level of parental education and computer and Internet access. This is illustrated further in Figure 2. While 43 per cent of households where the parent/s had less than ten years of education had a computer at home, for instance, this increased to 88 per cent for households where the parent/s was university-educated. Similarly, while only 18 per cent of households where the parent/s had less than ten years of education had Internet access at home, this increased to 57 per cent of households with a university-educated parent/s. This finding is consistent with previous studies that have found education level to be the key driver of Internet access, followed in importance only by income level (Hellwig & Lloyd 2000).

Figure 2 Households with home computers and Internet by education level



Frequency of usage of ICT by LFL students

In addition to examining the ownership and access of ICT by households, we also examined how frequently students use computers and the Internet as well as where they access them.

Computer Usage

An overwhelming majority of students (98%) indicated that they used a computer. This is comparable to Australia-wide surveys that have found that 95 per cent of children aged 5 to 14 used a computer in the last 12 months (ABS 2000b). Of those that used a computer, Table 6 presents the variation in the frequency of usage by a range of demographic variables. Overall, most students stated that they use a computer 'sometimes' (33%) or 'often' (28%), with one quarter of students stating that they use a computer 'regularly'.

Table 6 suggests that student age is a key factor in discriminating among LFL students in terms of frequency of computer usage. The older students use computers more frequently than younger students. While none of the other demographic characteristics seem to be strongly associated with the frequency of computer use, boys were more likely to state they used a computer 'regularly' (28%) compared to girls (22%). In terms of ethnic/cultural background, students from a European background were most likely (32%) to use a computer 'regularly' compared to other groups; while students from two-parent families were also more likely to use a computer 'regularly' (27%) compared to students from one-parent families (24%). Students from metropolitan areas were slightly more likely to use a computer 'regularly' (26%) compared to those from non-metropolitan areas (24%).

Table 6 Frequency of computer use by demographic variables

Variable	Frequency of computer use				
	Rarely (%)	Sometimes (%)	Often (%)	Regularly (%)	N[a]
Overall distribution	14	33	28	25	6694
Year					
1-3	18	47	20	15	846
4-6	16	36	27	21	1981
7-10	12	29	32	28	3131
11-12	13	21	30	36	690
Sex					
Male	14	31	27	28	3310
Female	14	34	30	22	3378
Ethnic Background					
Australia	14	33	28	25	5213
ATSI	12	32	29	27	96
ESB	10	32	32	26	196
Europe	12	29	26	32	325
Asia	10	30	33	27	133
Middle East & Africa	20	31	26	23	501
Central & S. America	11	36	28	25	97
Pacific Islands	29	29	24	18	62
Family Composition					
One Parent	15	33	29	24	3824
Two Parent	13	33	27	27	2723
Location					
Metropolitan	15	32	27	26	2727
Non-Metropolitan	14	33	29	24	3967

Notes:
[a] Number of cases may vary for each variable due to missing cases.

Table 7 examines frequency of computer use by socioeconomic status. Once again, parental level of education seemed to have the most influence, with over one-third (35%) of students whose parents were university educated using a computer 'regularly' compared to 23 per cent of students whose parents had not completed Year 10. Similarly, students whose parents' main source of income was from employment were more likely to state they used a computer regularly (29%), compared to students whose parents' main source of income was from social security (24%). Regular usage was also higher for students who lived in a house that was owned or being paid-off compared to those in private or public rental accommodation, and for those who lived in the more advantaged areas based on the IRSED.

Table 7 Frequency of computer use and socioeconomic variables

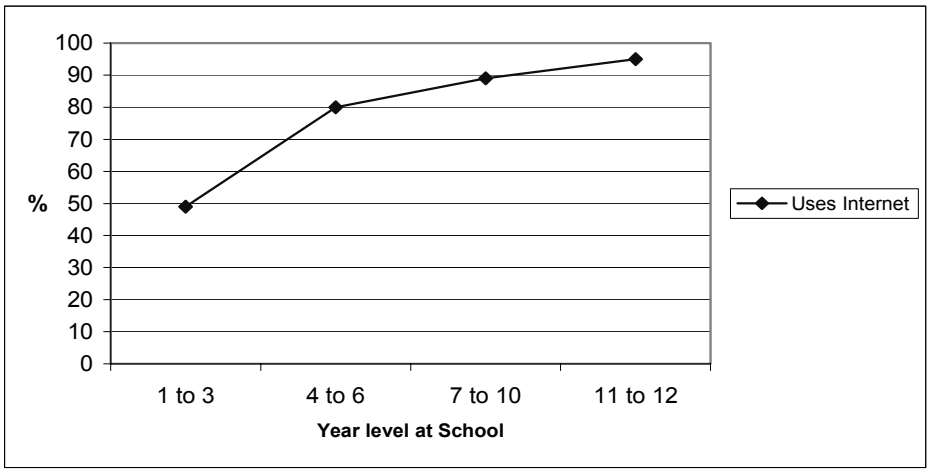
Variable	Frequency of computer use				
	Rarely (%)	Sometimes (%)	Often (%)	Regularly (%)	N[a]
Overall distribution	14	33	28	25	6694
Parental Education					
< Year 10	18	35	25	23	1136
Year 10	14	34	29	24	2526
Year 12	16	29	27	28	688
TAFE/Other post-Secondary	13	34	31	22	597
University degree	8	25	33	35	375
Main Source of Income	15	33	28	24	5815
Social Security	11	30	31	29	620
Employment					
Housing Type					
Public Rental	16	34	27	23	2901
Private Rental	14	32	29	25	2319
Owns/Purchasing	10	30	30	29	1335
Level of Disadvantage	13	33	30	25	1239
Bottom 10%	15	33	29	24	1446
10-25%	16	33	26	26	1831
25-50%	16	31	30	24	1382
50-75%	11	33	29	27	560
75-90%	12	33	27	29	191
Top 10%					

Notes:
[a] Number of cases for each variable may vary due to missing cases.

Internet Usage

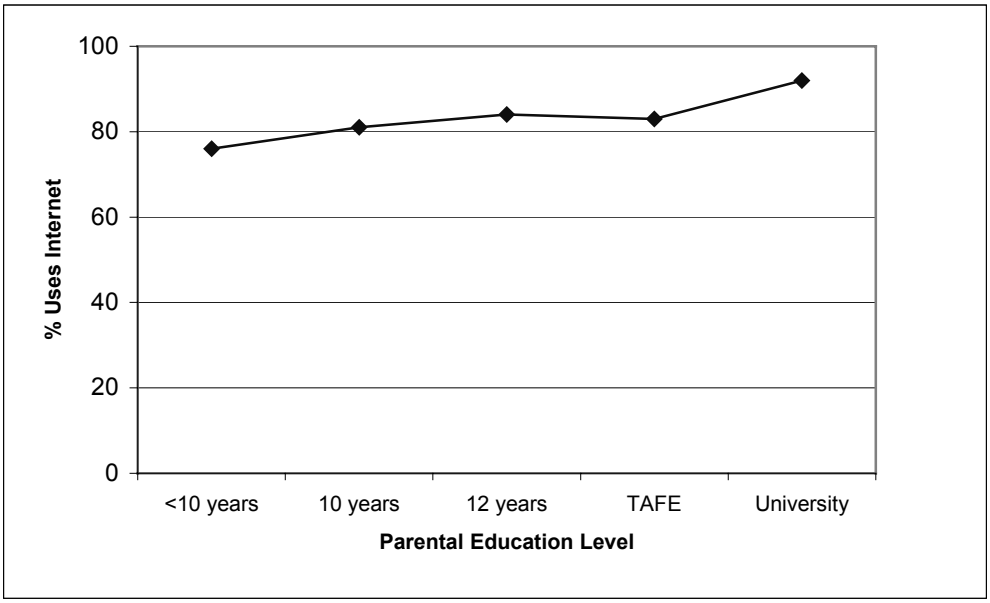
Just over four-fifths of students (82%) indicated that they had used the Internet. Consistent with other studies (see ABS 2000b), Figure 3 shows that older students were significantly more likely to state that they had used the Internet (95% for those in Years 11 and 12) compared to younger students (49% for those in Years 1 to 3).

Figure 3 Internet use by age



Once again, the level of parental education was a key factor in whether students used the Internet (Figure 4). While 92 per cent of students whose parent/s were university educated had used the Internet, this fell to 76 per cent for students whose parents had not completed Year 10. In terms of odds ratio analysis, students whose parents completed Year 12 were one and a half times more likely to have stated that they had used the Internet than students whose parents did not complete Year 12. Those students whose parents had a university degree were almost three times more likely to have ever used the Internet than those whose parents did not have a university degree.

Figure 4 Internet use by parental education level



Of those that used the Internet, Table 8 presents the variation in the frequency of usage by a range of demographic variables. Overall, only a small proportion of students stated that they used the Internet 'regularly' (11%), with just over one-fifth stating they used the Internet 'often' (22%), and almost two-thirds of students stating that they used the Internet either 'rarely' or 'sometimes'. Overall then, LFL students use the Internet less frequently than computers.

Table 8 also suggests that student age is a key factor in discriminating between the frequency of Internet usage among LFL students, with older students using the Internet more frequently than younger students. Male students were slightly more likely to state they used the Internet 'regularly' (13%) compared to female students (10%). In terms of ethnic/cultural background, students from a European background were most likely (17%) to use the Internet 'regularly' compared to other groups; while there was little difference in Internet usage by students according to family structure. Students from metropolitan areas were slightly more likely to use the Internet 'regularly' (14%) compared to those from non-metropolitan areas (10%).

Table 8 Frequency of Internet use and demographic variables

Variable	Frequency of Internet use				
	Rarely (%)	Sometimes (%)	Often (%)	Regularly (%)	N[a]
Overall distribution	32	35	22	11	5565
Year level					
1-3	44	38	13	5	423
4-6	36	39	18	7	1606
7-10	28	35	24	13	2861
11-12	29	25	27	19	658
Sex					
Male	31	35	22	13	2731
Female	33	35	22	10	2830
Ethnic Background					
Australia	32	36	21	11	4293
ATSI	33	38	21	9	77
ESB	31	30	23	16	172
Europe	24	32	27	17	287
Asia	38	33	18	11	118
Middle East & Africa	31	31	25	13	424
Central & S. America	19	38	33	10	81
Pacific Islands	36	36	21	7	58
Family Composition					
One Parent	33	36	21	11	3163
Two Parent	30	35	23	12	2274
Location					
Metropolitan	30	34	23	14	2301
Non-Metropolitan	33	36	22	10	3264

Notes:
[a] Number of cases may vary for each variable due to missing cases.

Table 9 examines frequency of Internet use by socioeconomic status. In contrast to computer usage, there did not appear to be a strong relationship between socioeconomic variables and the regularity of Internet usage.

Table 9 Frequency of Internet use and socioeconomic variables

Variable	Frequency of internet use				
	Rarely (%)	Sometimes (%)	Often (%)	Regularly (%)	N[a]
Overall distribution	32	35	22	11	5565
Parental Education					
< Year 10	33	38	18	11	894
Year 10	32	36	21	11	2090
Year 12	32	32	24	13	587
TAFE/Other post-secondary	34	33	21	12	500
University degree	26	35	29	10	347
Main Source of Income					
Social Security	32	35	22	11	4819
Employment	32	32	25	10	536
Housing Type					
Public Rental	33	36	20	12	2342
Private Rental	32	34	23	11	1945
Owns/Purchasing	29	36	24	12	1159
Level of Disadvantage					
Bottom 10%	32	34	22	12	1037
10-25%	32	37	21	10	1204
25-50%	32	35	22	12	1474
50-75%	31	34	23	12	1167
75-90%	31	35	21	13	481
Top 10%	29	35	22	14	162

Notes:
[a] Number of cases may vary for each variable due to missing cases.

Location of Internet use

Almost three-quarters (70%) of students that used the Internet did so at school. Table 10 shows that the next most common location for Internet use was at home (29%). While the importance of school as a site for Internet use is consistent with other nation-wide surveys, the proportion of students who indicated they used the Internet at home is lower compared to the national average. For instance, the ABS found that 67 per cent of children aged between five and fourteen used the Internet at school and 56 per cent used the Internet at home (ABS 2000b). Looking at a similar age group among the LFL students shows that while the same proportion (67%) was found to use the Internet at school, the rate for using the Internet at home was only 27 per cent. Given the relatively low rates of home Internet access discussed earlier (32%), these findings are not that surprising, but more importantly, they suggest the important role that schools have as a means of providing access and training in ICT for students of disadvantaged backgrounds (Zappalà et al 2002).

It is also interesting to note that using the Internet at school was also related to the level of parental education. While two-thirds of students whose parents' had not completed Year 10 stated they used the Internet at school, this increased to almost four-fifths of students whose parents were university educated. Apart from the level of parental education, student age was the only other variable that influenced use of the Internet at school, with usage increasing for older students (38% of students in Years 1-3 used the Internet at school compared to 76% for students in Years 11-12).

Table 10 Location of Internet Use

Place Internet used	N	%[a]
During school	4790	70
Home	2024	29
Friend's House	1466	21
Public library	1113	16
At school after hours	327	5
Youth/community centre	90	1
Other	252	4
Internet café	66	1

Notes:
[a] Does not add up to 100% because participants could endorse more that one option

Discussion and conclusion

This background paper is the first of several publications that provides empirical data to complement previous conceptual work on the 'new economy' and the digital divide (Zappalà 2000.) Zappalà et.al 2002. This paper focused on what was termed the 'A' of the 'ABCs of the digital divide' – Access, Basic Training and Content (Wilhelm et al 2002:2). Another report details the findings of TSF's Computer Clubs that while also aimed at providing access, have a focus on training and content (see Smyth & Zappalà 2002). Some of The Smith Family's programs aimed at addressing the ABC of the digital divide are also highlighted in Appendix 2.

Further analysis of the data in this paper as well as research in progress will also provide a basis for further TSF policy, research and program initiatives. Although the results discussed in this report are preliminary and have not employed multivariate techniques to isolate the effects of particular variables, they nevertheless point to several preliminary research and policy implications that will be pursued in more detail in forthcoming TSF publications and programs.

First, while the access gap has been narrowing over the last few years, only one-third of families who were on the LFL program at the end of 2001 had home Internet access. This compares to almost half of the comparable (i.e. families with children) population Australia-wide. While some may not consider this finding to be that alarming, when seen in the context that having home Internet access is increasingly important for children's educational performance, then the fact that almost three-quarters of students did not use the Internet at home is of concern. Finding ways to increase the home access of low-income families to the Internet should therefore remain a policy priority for all sectors (government, private and nonprofit) aiming to bridge the digital divide.

Second, the results are particularly interesting given that our sample controls for one of the key socioeconomic factors known to be associated with lack of access – income. All families on the LFL program are by definition low-income families. Despite this, several other dimensions of socioeconomic status seemed to be related to home access of computers and the Internet, and in some instances, the usage of computers and the Internet. In particular, the level of parental education was most strongly associated with home access to computers and Internet as well as computer and Internet usage. This finding is consistent with the key role found for educational level in home access to ICT in the multivariate analysis conducted by NATSEM (Hellwig & Lloyd 2000).

This finding also bears a remarkable similarity to other studies that examined the relationship between the educational performance of students on LFL and socioeconomic status (Zappalà & Considine 2001; Considine & Zappalà 2002). Controlling for other variables, the authors found that a student whose parent/s were university educated had a 39 per cent predicted probability of attaining 'outstanding' results compared to 9 per cent for students whose parent/s had not completed Year 10. A key reason posited to explain

that finding was that the levels of parental education acts as a proxy for the degree of educational support parents provide for their children. Previous studies show that the level of parental education is strongly associated with factors such as the home literacy environment, parents' teaching styles and investment in resources that promote learning (Shonkoff & Phillips 2000). Key resources for learning in today's information society also include computers and the Internet.

This has at least two implications. First, the costs of these resources, as with other educational costs in general, are increasingly being pushed onto individual families. This further compounds the problem for families in financial disadvantage who often struggle to meet the basic costs of their children's education. It therefore reinforces the need for programs such as *Learning for Life* that aim to assist families in financial disadvantage to meet some of the costs associated with their children's education. Second, policies aimed at bridging the digital divide should not only focus on reducing the cost of ICT, but also on ensuring that programs that provide appropriate parenting support also emphasise the educational importance of having home access to computers and the Internet. This may also mean that access and training programs such as 'computer clubs' should focus just as much on parents as they do on children. Once again, the dual-generation approach (focus on parents and children) of programs such as *Learning for Life* provide an appropriate framework within which to embed such initiatives.

Third, other key factors associated with home access were ethnic and cultural background, family structure, housing type and regional disadvantage. The findings with respect to ethnicity were also consistent with the above-mentioned study on educational outcomes of LFL students. Namely, students from NESB (with the exception of those from Middle East/Africa) were significantly more likely to achieve outstanding results compared to students from English-speaking backgrounds. Similarly, the findings with respect to access suggest that families from some NESB groups have higher levels of home access compared to those that were either Australian born or born overseas from English speaking countries.

Fourth, schools are important in closing or leveling the access gap, as most students use computers and the Internet at school. Reinforcing the role of parental education, however, the likelihood of students using the Internet at school also increased in line with the educational level of their parents. Greater research and policy attention needs to be given to the role of schools, teachers and parents in the 'ABC of the digital divide'.

Appendix 1 The new economy and inequality

Table A1 The 'new economy I' and its implications for inequality and disadvantage

Definition of 'new economy'	*Key indicators*	*Key impacts on inequality and the disadvantaged*	*Policy responses*
1. Companies/individuals involved in the internet and ICT - Narrow in focus - Popular approach in the media	• Extent & usage of ICT by individuals; • Extent of e-commerce; • Dotcoms	• Unequal access of ICT across the population • Unequal usage of ICT across the population - key factors include: (Education level, income, socio-demographics, school) ⇩ ***"The Digital Divide" – compounds existing problems of disadvantage:*** • Further entrench the relationship between low SES and poor educational outcomes; • Decreases access to educational & cultural resources; • Reduces prospects of finding employment; • Reduces access to business & government services; • Increases marginalisation from society	• Do nothing? Only a short-term problem which will resolve in medium to long-run (e.g. colour TV)? • Government policies: - *Supply side*: investment in infrastructure to facilitate/ensure ICT access (especially in state schools, rural & regional areas) - *Demand side*: encourage usage (e.g. NOIE, computer literacy in schools, ICT policies @ schools, tax incentives) • Innovative programs run by partnerships between community organisations, business & government: - Risk of fragmentation/duplication? - Are they sustainable?

Source: Compiled from Zappalà (2000, 2001); Zappalà et al (2002).

Table A2 The 'new economy II' and its implications for inequality and disadvantage

Definition of 'new economy'	***Key indicators***	***Key impacts on inequality and the disadvantaged***	***Policy responses***
2. 'New economy': used interchangably with 'knowledge economy', 'information economy', 'network society', but focuses on implications of ICT for economic & social structures of society - broader in focus - focus on skilled workforce - specialised approach but popular usage is also increasing	• All from 1st table plus: • Production of ICT; • % of workforce in 'knowledge sector' jobs ; • % expenditure on R&D; • % innovation; • % of pop. with higher education attainments; • developed venture K mkt; • competitive advantage generated through reliance on intangible assets (e.g.patents, brands, intellectual K); • debate between new economy sceptics & proponents	• Increased social exclusion as a result of new economy impact on labour market; • Creation of a two-tiered economy • Stark wage inequality(1/3 vs 2/3 scenario – wage pyramid); • Division between 'new economy insiders' & 'new economy outsiders' in terms of pay and training (double jeapordy) • Largest growth in jobs has been in the S sector: low skilled, poorly paid, little access to training, precarious → *'working poor'*	• Investment in/strengthening of public education; • Re-skilling bottom 2/3 of workforce BUT • Education/training alone not the answer; • Create a 'knowledge economy' as well as 'knowledge society'; • Balanced sectoral development; • Creating skills/jobs in leading edge sectors; • Regulate & improve low-paid jobs & wages; • Policies that foster 'social cohesion' and inclusion rather than encourage 'social isolation'; • Increase the social wage; • Broad societal choices/debates also required

Source: Compiled from Zappalà (2000, 2001); Zappalà et al (2002).

Appendix 2 TSF programs addressing the digital divide

Computer Clubs

The Smith Family Computer Clubs, funded initially from the Microsoft 'Young Minds in Motion' program, provide students on TSF's *Learning for Life* (LFL) program with free after-school tuition and access to computers, a range of software and the Internet. The Clubs also aim to improve students' ICT skills and confidence through developing their computer competence. In the context of the 'ABCs of the digital divide' – Access, Basic Training and Content, The Smith Family Computer Clubs pilots address the 'B' of the equation for some students on the *Learning for Life* program. By also providing Access to computers and the Internet in an environment aimed at fostering computer literacy, the Clubs have also enhanced students' educational experience.

The Computer Clubs pilot program commenced in the winter of 2000 in Victoria. Although originally envisaged as a one-year pilot program, the Computer Clubs were extended for a second year in June 2001 and for a third year in June 2002. Over the first two years of the pilot program, almost 350 *Learning for Life* students have attended a Computer Club session at Sunshine, Collingwood and Ballarat.

Computer Club participants are given access to an individual workstation, specialised computer equipment, the Internet, a range of Microsoft and other programs and instructors to answer questions and provide information. The curriculum is used as a flexible resource, which can be adapted for students with a wide range of computer skills, competencies and interests. At the beginning of each session, the students and instructors negotiate the topics that will be covered.

An evaluation report based on the views of students who have participated in the Clubs to date suggested that students enjoyed attending the Computer Clubs and found them to be a very positive learning environment. Participants were positive about the work activities undertaken at the Computer Club, subjects covered, the special project they undertook and their chance to complete work they had to do for school. Moreover, almost all the Computer Club participants said they learned something new at the Clubs. This finding highlights the educational value of the Computer Clubs and allays initial concern that students would enjoy the Clubs purely because they would be able to play computer games. The findings from the evaluation also suggest that, for the most part, the Computer Club curriculum adequately addressed participants' learning needs.

For an in-depth overview of the Computer Clubs see Ciara Smyth & Gianni Zappalà, The Smith Family Computer Clubs pilot program: A Progress report, Background Paper No. 6, 2002, Research & Social Policy Team, The Smith Family.

Ignite

Ignite is a joint initiative between The Smith Family and Cisco Systems and has been developed as part of a menu of initiatives aimed at bridging the digital divide. In the context of the 'ABCs of the digital divide' – Access, Basic Training and Content, the Ignite program primarily addresses the 'C' of the equation for students on the *Learning for Life* program. Ignite is a special web site that has been developed for students on the *Learning for Life* program. It aims to give students access to digital communication and learning tools to further their educational development and enhance the *Learning for Life* program. Through Ignite, LFL students will have access to educational resources that may not generally be available to them, including virtual tutoring, help with homework and assignments through an online learning centre and safe links to educational sites, a bulletin board, chat facilities, and e-mail in a secure environment. The web site also includes recreational links such as movie reviews, television shows, music and competitions.

Students also receive educational support through a qualified Education Support Worker who provides information and advice, monitors their academic progress, assists parents with difficult situations and gives the family another voice. They also receive extra coaching and career advice from volunteer mentors and tutors.

The web site will vary in terms of design and content for students of different age groups to reflect their different interests and educational level. Two separate sites have been developed for senior primary and junior secondary students ensuring the design, content and information is appropriate and adequately addresses their educational needs. Eventually every student on the *Learning for Life* program from kindergarten to university will have access to Ignite. Ignite is a secure site with *Learning for Life* Education Support Workers, students, their families and the volunteer tutors having access. You can go on a virtual tour of the site at www.ignite.auz.net.

A pilot of the Ignite website conducted earlier this year involving 55 students revealed overwhelming enthusiasm and interest in the project. The Smith Family began rolling out Ignite in June. The aim is that 12,000 students will be able to log on to Ignite by the end of the year.

For further information on Ignite, contact the Ignite Project Manager, Kirsten Buwalda (02) 9550 4422.

Appendix 3 Survey respondent summary statistics

Table A3 Characteristics of respondents compared to LFL students at October 2001

Family/Student Characteristic	Respondents %	All LFL %
Grade at school		
1-3	13	13
4-6	30	29
7-10	47	47
11-12	10	11
Total (N)	100 (6824)	100 (11846)
Sex		
Male	50	50
Female	50	50
Total (N)	100 (6868)	100 (11941)
Location		
Metropolitan	41	43
Non-metropolitan	59	57
Total (N)	100 (6874)	100 (11942)
Level of disadvantage of location		
Bottom 10%	19	18
10-25%	22	21
25-50%	27	27
50-75%	21	22
75-90%	8	9
Top 10%	3	3
Total (N)	100 (6828)	100 (11870)
Family type		
One-parent	59	62
Two-parent	41	38
Total (N)	100 (6720)	100 (11662)
Education level of parent		
<10 years	22	22
10 years	47	48
12 years	13	12
TAFE/Other post-secondary	11	12
University degree (Bachelor or post-graduate)	7	6
Total (N)	100 (5459)	100 (9473)
Ethnic Background		
Australia	79	79
Aboriginal/Torres Straight Islander (ATSI)	1	2
English speaking background (ESB)	3	3
Europe	5	5
Asia	2	2
Middle East & Africa	8	7
Central & South America	1	1
Pacific Islands	1	1
Total (N)	100 (6803)	100 (11821)
Main source of income		
Social security	90	91
Employment	10	9
Total (N)	100 (6610)	100 (11520)
Housing type		
Public rental	44	47
Private rental	36	36
Owns/purchasing house	20	17
Total (N)	100 (6730)	100 (11695)

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