



2001 CENSUS OF POPULATION AND HOUSING

Census Paper

2001 CENSUS: COMPUTER AND INTERNET USE

(Census Paper No. 03/03)

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(Census Paper No. 03/03)

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Population Census Evaluation

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SUMMARY OF FINDINGS

The 2001 Census Paper: *Computer and Internet Use* presents an evaluation of the quality of information technology data collected in the 2001 Census of Population and Housing.

The main findings of this paper are:

- Less than half (43%) of the population used a computer at home and 38% used the Internet the week before the 2001 Census.
- The use of information technology fluctuated across age groups. Computer use at home was high for those aged 10-19 years (70%) but dropped off to approximately 50% for those aged 20-49 years. A sharp decline in computer use at home was found for those aged 50 and over, with only 10% of those aged 65 and over using a computer at home.
- Those aged 10-19 years had the highest rate of Internet use anywhere (60%). Internet use declined gradually throughout the ages of 20-49 years and declined sharply for those aged 50 and over. Only 6% of those aged 65 and over had used the Internet the week before the Census.
- Education level was strongly related to the use of computers and the Internet. Of those aged over 15 who had no non-school qualification 35.6% used a computer at home and 33.1% used the Internet. In contrast, of those who had a tertiary qualification other than a trade certificate/apprenticeship (such as a Bachelor degree), 63% used a computer at home and 66% used the Internet.
- Indigenous Australians were much less likely to use information technology. 18% of Indigenous Australians used a computer at home the week before the Census compared to 44% of non Indigenous Australians. 16% of Indigenous Australians used the Internet compared to 39% of non Indigenous Australians.
- Non-response varied with age. It was higher for infants and those aged over 65. The average non-response rate for the computer use question was 1%. Of those aged 0-4 years, the non-response rate was 5% and of those aged 65 and over, 3%. For the Internet use question, the average non-response rate was 2%. The non-response rate was 6% for those aged 0-4 years and 3% for those aged 65 and over.
- 57,628 respondents (or .03% of the population) claimed that while they did not have a job the week before the Census, they used the Internet at work the week before the Census. Further examination revealed that this group was largely made up of students, those not born in Australia, and those who spoke a language other than English at home. This indicated misunderstanding in the way 'work' was defined. It is recommended that 'educational institution' be included as a location option for use of the Internet in future Census forms.
- The Census data compared with the Household Use of Information Technology Survey 2000 (ABS publication catalogue number 8146.0) and the Childrens Participation in Cultural and Leisure Activities Survey (ABS publication catalogue number 4901.0)

reported slightly lower rates of use of home personal computers and the Internet. This was thought to be largely due to the difference in question formats.

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1. INTRODUCTION

1.1 *About Census Papers*

The ABS has a stated, corporate objective to provide the means for informed and increased use of statistics. This paper is one of a series produced after each census by the Australian Bureau of Statistics' Population Census Evaluation Team, whose role is to review the data quality of the 5 yearly Census of Population and Housing. The aim of a Census Paper is to inform users of issues that have been identified as impacting on the quality of the census data, to be considered when utilising the data. Analyses such as this are a critical factor in the continuous quality improvement of the Census Program. The ABS welcomes your feedback and suggestions.

1.2 *This Paper*

This Paper focuses on the data from two questions new to the Census in 2001. The questions relate to the use of personal computers and the Internet. Questions about the use of computers and the Internet were introduced into the Census for the first time in 2001 for the purpose of assessing the use of information technology by Australians at home, work and other locations. Images of the two questions are included in *Section 2, Question Design*.

This paper contains information about how various stages in the development and processing of the 2001 Census might have affected the data, with a particular focus on the questions about the use of information technology. Data quality can be affected during any stage of the Census, for example, the design and sequencing of the questions, collection, and processing. A description of the Quality Management System for data processing is provided, and possible implications for the data are discussed. Such information should be considered by the users of the data.

Non-response rates are examined, in order to identify common characteristics of those who did not respond to the questions about the use of personal computers and the Internet. This may help in identifying particular groups who could benefit from increased attention in the 2006 Census.

Finally, the data from the 2001 Census on the use of personal computers and the Internet is compared to the data collected from the ABS surveys, *Household Use of Information Technology Survey* (8146.0), and the *Childrens Participation in Cultural and Leisure Activities Survey* (4901.0) with particular attention to data quality issues and comparability.

1.3 *Background*

Data on the impact of information technology on the lives of Australians is becoming ever more necessary as the use of information technology has increased dramatically, particularly over the 1990s. For example, between 1999 and 2000 alone, home access to the Internet in Australia increased approximately 50% (*Household Use of Information Technology, Australia*, Cat no. 8146.0). The inclusion of questions about the use of information technology in the Census allows information to be cross tabulated with variables such as sex,

age and education, to analyse the spread of information technology throughout Australia. This is necessary to understand and assist economic and social development.

Data on the use of information technology is required by the Government and the private sector for planning and service provision. Census data on information technology use is particularly helpful when assessing the needs of those in regional areas, as the Census may be the only opportunity for collection of personal statistical information in these areas.

Information about the use of personal computers and the Internet is useful to the Government and the private sector in promoting and targeting services available to the public through the Internet. Examples of some existing Internet services include online bill payments, electronic tax returns, employment advertising, and provision of information on government benefits.

1.4 Data Quality Issues

Data quality issues in the 2001 Census questions relating to the use of information technology may have arisen from the following:

- Form and question design;
- Testing and the late introduction of the questions to the Census timetable;
- Self Enumeration and data collection methodology; and
- Data processing.

The decision to include the questions about use of personal computers and the Internet was made too late for the questions to be fully tested by the 2001 Census Test Program conducted during 1997-1999. However, to substitute, extensive cognitive testing was undertaken in February 2000. Twelve focus groups selected to represent a broad cross section of the population were conducted over four days.

Some minor concerns about the question about personal computer usage were identified as follows:

- A small number of respondents over-reported on computer use. This was mainly due to some participants responding that a personal computer was used in the last week, when it was in fact used three to four weeks ago.
- Another over-reporting problem was where parents had indicated that children had used a computer at home when they had in fact used a computer at school.
- The definition of 'last week', as included at the end of both questions was identified as an area of concern, as there was uncertainty as to whether 'last week' meant the last seven days, or last week Monday to Sunday. The 2001 Census Guide did not define 'last week'.
- Concern was raised about the possible negative impact of questions about the use of information technology on certain groups, such as those with low socio-economic status or older people. There is a perception that income and the use of information technology are positively related. This perception is relatively accurate, as presented in *Section 6 Final Data Analysis*. In answering the information technology questions, those who did

not use a computer at home or the Internet may have felt inadequate and/or of low social status.

Focus group analyses for the question relating to use of the Internet identified that all of those who participated interpreted the question as intended, and answered accordingly. As this inclusion indicated that the question worked effectively, it was considered appropriate for inclusion in the 2001 Census.

The questions relating to the use of personal computers and the Internet were included in the form used in the 2000 Dress Rehearsal for the Census. The data from the Dress Rehearsal, including non-response analysis, indicated that the questions were acceptable for use in the 2001 Census. For more information see *Census Paper 02/03, 2001 Form Design Testing Paper*, available from the ABS web site.

The Census is self enumerated, meaning that respondents completed the form with little or no assistance from the Census collector. Therefore, the presentation of the questions in the Census form, the instructions, sequencing, and examples used to help respondents answer questions, may contribute significantly to the response rate and response quality. There was little opportunity for the Census collector to brief, prompt or clarify definitions for the respondent. This may have been a problem for the question relating to Internet use. For example, respondents may have interpreted Internet as not including the use of e-mail, whereas if prompted that the Internet included the use of e-mail, higher Internet usage may have been found. The 2001 Census Guide did not prompt respondents that email was included in Internet use.

2. QUESTION DESIGN

The questions relating to the use of information technology were included in the 2001 Census at the request of the Commonwealth Government, mainly because of the need for information to aid service provision of information technology. The scope of the questions was not limited (they were to be answered by Australians of all ages). Figure 1 contains the questions as they appeared on the 2001 Census form. The 2001 Census Special Indigenous Personal Form contained the questions as in Figure 1 with the one difference, the word 'you' was inserted in place of 'the person'.

Figure 1. 2001 CENSUS HOUSEHOLD FORM

20 Did the person use a personal computer at home last week?	<input type="radio"/> No <input type="radio"/> Yes
21 Did the person use the Internet anywhere last week? ▪ Mark all applicable boxes.	<input type="radio"/> No <input type="radio"/> Yes, at home <input type="radio"/> Yes, at work <input type="radio"/> Yes, elsewhere

The same questions relating to the use of information technology were included in the Household Forms, Personal Forms and Special Indigenous Personal Forms which together accounted for approximately 97.7% of the population.

The questions were not included in Special Short Forms (for people sleeping out or staying in an improvised squat or improvised dwelling and those unlikely to be completing a Personal Form at a hostel, refuge or other accommodation), Substitute Forms (where the census collector does not receive a completed household form, due to refusals or non contacts), Summary Forms (for hotels and caravan parks, where a person in charge records the number of people staying that night), or Efiles (created from data collected from prisons).

As approximately 2.3% of the 2001 Census count of Australia were enumerated via Systems Created Records, Special Short Forms, Summary Forms or Efiles, data on the use of information technology was not collected from this portion of the population.

The possible impact of the 'list effect' on data

For self coded responses where a question offers a list of mark box options, bias can occur. This is know as the 'list effect'. The questions relating to personal computer use and use of the Internet both had mark box response options. The simple design of the computer use question gave two mutually exclusive answers (Yes or No). This would minimise any list effect.

However, the Internet use question was designed to accept multiple responses and the results of this question may be susceptible to the list effect.

The list effect includes the following possible response patterns:

- An increase in response to the top option on the list;
- An option to be chosen from the list of response options in preference to one not on the list; and
- Responses being elicited by lists of options where other responses would have been provided if not for the lists.

As examined in *Section 5, Sample Data*, there were some cases of multiple boxes being marked (both 'yes' and 'no' marked). This may be an indication of the list effect occurring.

As discussed in *Section 6, Final Data Analysis*, a number of respondents indicated that while they did not have a job, they accessed the Internet from work. The list effect may have been operating here, with respondents selecting 'work' as a location of Internet access, rather than an option not listed such as university, school, a friend's house or a public library.

3. COLLECTION OF THE DATA

During the collection phase of the 2001 Census, collectors reported increased difficulty contacting some householders. Access to secure small and large apartment buildings, gated communities, and growing community concerns about security, made it increasingly difficult to judge whether the residents of a dwelling were absent or not.

System Created Records were created during Census processing for people for whom a Census form had not been received but where the collector believed the dwelling to be occupied on census night. System Created Records had values imputed for age, sex, marital status and usual residence only, and values for other variables set to Not Stated or Not Applicable, depending on the imputed value for age.

An increase in non-response (Not Stated) rates was apparent for many census variables in the 2001 Census. Most of the change was attributed to the increase in the proportion of Systems Created Records. A Fact Sheet, *Effect of Census Processes on Non-response Rates and Person Counts* has been produced and stored on the ABS web site, which discusses the factors that may have contributed to the increase in System Created Records for 2001, and the percentage of records affected by state. Discussion of the non-response rates for the questions relating to the use of personal computers and the Internet are in *Section 6, Final Data Analysis*.

4. PROCESSING AT THE DATA PROCESSING CENTRE (DPC)

4.1 Data Capture

Data capture is the process of scanning Census forms into image and text files. Mark box responses are captured and the files are stored and used for all subsequent processing. The simplicity of the computer and Internet use questions allowed for automatic capture of responses. There was no index matching or manual intervention required.

4.2 Edits applied to the data

The ABS Census program has a minimalist editing approach, with most data output as reported on census forms. However, on occasion editing is used in a systematic way to ensure that data is:

- More complete, for example if the basic demographic variables of age, sex or usual residence are not stated, they are imputed based on known distributions;
- Socially consistent to some extent, for example age edits do not allow 5 year olds to be attending high school;
- Consistent with ABS classifications used in other ABS collections. For example, Labour Force Status is derived using the same derivation used in the Labour Force Survey, to allow clients to more accurately compare data.

Computer use question

If 'Yes' and 'No' were both marked, 'No' was recorded and 'Yes' was disregarded. This is the standard 'first mark' processing rule.

Internet use question

The question relating to use of the Internet had multiple options. That is, more than one site of Internet access could be selected as a valid response. However, in line with business rules used to process Labour Force data in the ABS, only those people aged 15 or over are considered eligible to work. Table 1 contains the edits that were applied during census processing for those aged less than 15 years.

Table 1. EDITS OF RESPONSES OF THOSE AGED UNDER 15 TO THE 2001 CENSUS QUESTION 'DID YOU USE THE INTERNET ANYWHERE LAST WEEK?'

<i>Response</i>	<i>Edit amended response to:</i>
Yes, at work	Yes, elsewhere
Yes, at home and at work	Yes, at home
Yes, at work and elsewhere	Yes, elsewhere
Yes, at home, work and elsewhere	Yes, at home and elsewhere

There was no edit in place to cross check a response of 'Yes (used the Internet), at work' if there was a subsequent response of 'No, did not have a job' in the labour force question of

'Did the person have a full time or part time job of any kind?'. This is consistent with the minimalist editing approach, as the ABS cannot determine which answer was correct. Technically the answers 'Yes used the Internet at work' and 'No, did not have a job' are not mutually exclusive, as it is possible that the respondent accessed the Internet at the work of another person, while the respondent themselves did not have a job. Further discussion of those who answered in this way is included in *Section 6, Final Data Analysis*.

While it would be considered unusual for a person to access the Internet at home the week before the Census but not use a computer at home the week before the Census, there was no edit in place to exclude this pair of responses. It is possible to access the Internet from means other than computers, such as mobile phones. In the 2001 Census, less than 1% of respondents did not use a computer at home, but used the Internet at home.

4.3 Quality Management

Quality Management processing took a sample of each coder's work and samples of codes resulting from data capture and automatic coding, for duplicate coding by a second coder. When the original code and second code differed, both outcomes were written to a mismatch file. These mismatches were then re-coded for a third time, by an adjudicator who determined the correct code. When the adjudicator determined a code that differed from the original and/or second coder, a discrepancy was recorded for that source; in some cases the adjudicator determined both to be incorrect, and both had a discrepancy recorded. A report of these discrepancies was fed back to the relevant coder/s, or process, so that retraining could be done, or systems updates could be made.

In the majority of cases, the data were not corrected as a result of this sampling: the aim was to improve the coder or process to prevent recurring of errors. However, in extreme cases the production data was re-coded. The discrepancies were also aggregated into the Management Information System (MIS) reports which provided data on the types and frequencies of coding errors over time. The discrepancy rates for the questions relating to the use of information technology are presented below in Table 2. Discrepancies for both of the questions were all due to whether Not Stated was recorded correctly or not, rather than yes/no discrepancies.

Table 2. 2001 CENSUS DISCREPANCY RATES

<i>Question</i>	<i>Discrepancies</i>	<i>Sample Size</i>	<i>Discrepancy rate</i>
Computer use	299	861,604	.03%
Internet use	4,589	871,092	.53%

The question relating to the use of personal computers had a lower discrepancy rate, possibly because there were only two mark box response options. The question relating to the use of the Internet had a higher discrepancy rate, probably largely because there were four mark box options.

5. SAMPLE DATA

A 2% statistically derived sample of Collection Districts was taken for detailed quality analysis. Included in the sample were Collection Districts from each state and territory representing the wide range of urban and rural areas in Australia. This data set did not have instances edited out where an invalid combination of options was marked (such as 'No' and 'Yes' for computer use) on the Census forms.

Computer use question

Only 0.03% of the responses in the sample had both 'No' and 'Yes' marked for the question 'Did you use a personal computer at home last week?'. This was 98 people of the sample of 366,667 (see Table 3). The age groups of 15-19 years and 25-29 years were more likely to answer both yes and no, with 0.05% of each age group (in the DQI sample) responding in this way. This finding was not due to high numbers of students in these age groups as students were no more likely to answer this way than non students. Further examination of the way students responded is in *Section 6, Final Data Analysis*.

Internet use question

The question about the use of the Internet had more possible mark boxes, and therefore a 'no-yes' combination was more likely to occur than for a question with fewer mark box options. The rate for 'no-yes' responses was 0.05%, 190 in a sample of 366,667. This was slightly higher than 0.03% for the question about computer use (see Table 3). 0.09% of those aged 10-14 and 15-19 years marked both 'yes' and 'no'. Students were slightly more likely to choose a 'no' and 'yes' combination, particularly the combination of 'no' and 'yes, elsewhere' (0.05%). It is possible that some were confused because they had just answered about personal computer use at home when they read the Internet question. This could have led them to interpret the question as asking if they used the Internet at home ('no'). Then when they saw the option of 'elsewhere', answering 'yes elsewhere' because they had used the Internet at an educational institution. Further analysis of student responses is included in *Section 6, Final Data Analysis*.

Table 3. MULTIMARK RATES ('YES' AND 'NO') FOR QUESTIONS RELATING TO COMPUTER AND INTERNET USE IN THE 2001 CENSUS DATA QUALITY INVESTIGATION SAMPLE (a)

<i>Question Topic</i>	<i>Number of responses with a 'no-yes' combination</i>	<i>Sample Size</i>	<i>%</i>
Computer use	98	366,667	0.03%
Internet use	190	366,667	0.05%

(a) Excludes Overseas Visitors and System Created Records

6. FINAL DATA ANALYSIS

In the following data analysis, data from a small proportion of non contributing records were excluded. These records were Overseas Visitors (203,101), System Created Records comprising non-contact (403,729) and admin/other (59,423).

6.1 Initial Analysis

Computer use question

Those who had used a computer at home the week before Census night comprised 43.1% of the population. Those that had not used a computer at home the week before the Census comprised 55.5% of the population. There was a wide variety of responses across age groups (see Table 4). Interestingly, 14.9% of 0-4 year olds used a personal computer at home the week before the Census. This suggests that questions relating to information technology are quite relevant for children of young ages.

10-14 year olds had the highest affirmative response rate at 70.6%, nearly 27% above the national average. The affirmative response rate for 15-19 year olds was very similar at 68.5%. People in these age groups were more likely to use computers for educational purposes than people in other age groups. *The Children's Participation in Cultural and Leisure Activities survey* (Cat. no. 4901.0) found that children aged 12-14 years most frequently used computers for school or educational activities, followed by games.

Affirmative responses declined for 20-24 year olds (51.2%). This age group may have had less of a need to use a computer at home for study. This trend continued throughout subsequent age groups, but began to drop at the age group of 50-54 (41.2%) to a sharp decline for those aged 65 years and over. Figure 5 below shows both computer and Internet use at home by age group.

Table 4. COMPUTER USE AT HOME BY AGE GROUP

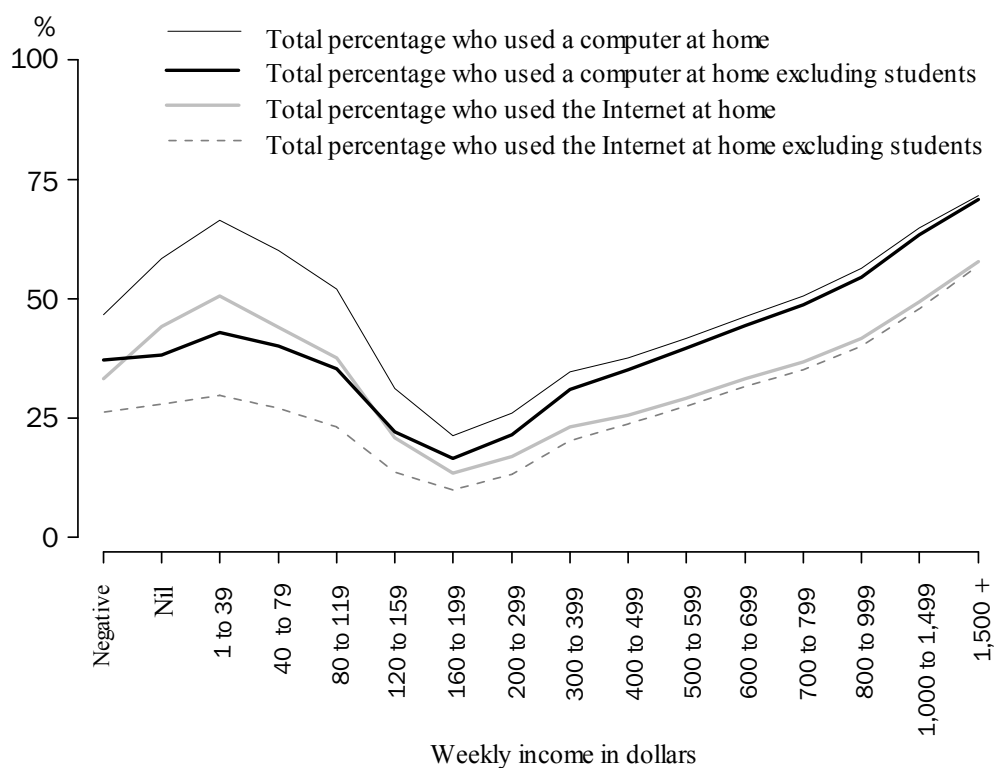
<i>Age group in years</i>	<i>% of population (a)</i>
0-4	14.9
5-9	51.8
10-14	70.6
15-19	68.5
20-24	51.2
25-29	46.3
30-34	49.7
35-39	52.8
40-44	52.5
45-49	48.3
50-54	41.2
55-59	33.4
60-64	24.0
65-69	16.7
70-74	11.4
75-79	7.1
80-84	4.3
85-89	2.3
90 and over	2.7
Average, all age groups	43.1

(a) Excludes Overseas Visitors and System Created Records

When examining computer use at home by income (for those aged 15 and over), those with weekly income brackets Negative income, Nil income, \$1-39, \$40-79, \$80-119 had higher than average use of computers. This could be largely due to the student and youth population. Although when students were excluded, those with lower than average incomes still had higher rates of computer use at home than those with mid range incomes (see Figure 2).

A further examination of those with a weekly income of \$120-\$399 revealed that they consisted of a high proportion of those aged 55 and over (45.7%). As mentioned above, those aged 55 and over had the lowest rate of computer use at home, which would help explain the drop in computer use in the income range \$120-\$399. This is visible in Figure 2, which also displays a similar trend for Internet use at home by income.

Figure 2. COMPUTER AND INTERNET USE BY STUDENTS AND NON STUDENTS AT HOME BY INCOME (a)



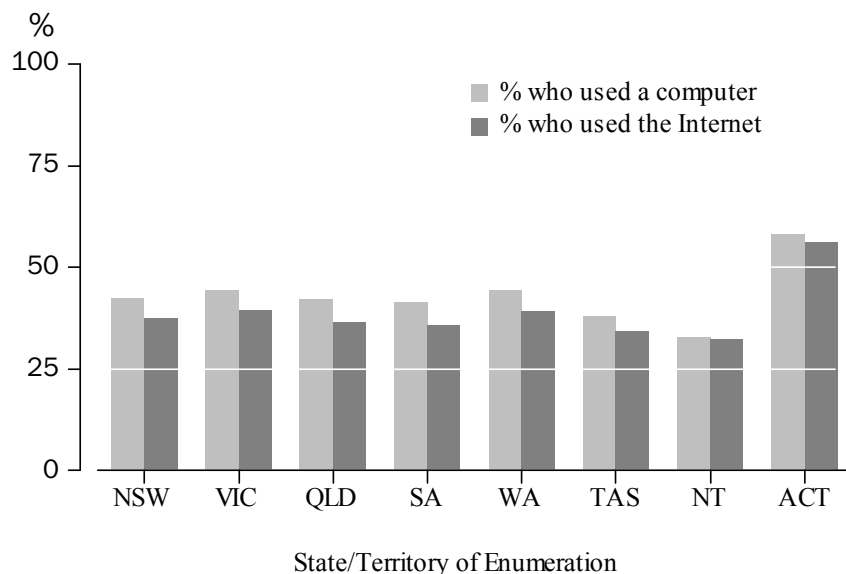
(a) Excludes Overseas Visitors, System Created Records, those aged under 15 years, and those who did not state their income

The Australian Capital Territory had the highest rate of computer use at home (58.0%), which was well above the national average (43.1%). This may be partially due to the high average income in the Australian Capital Territory. The income category with the largest number of respondents in the Australian Capital Territory was \$1000-\$1499 per week, while the income category with the largest number of respondents across Australia was \$200-\$299. The larger proportion of students (31.4%) in the Australian Capital Territory than the national average (26.1%) may be another reason for the higher than average use of computers at home.

The Northern Territory recorded the lowest reported use of personal computers at home (32.9%). This may be due to the low average income in the Territory (the largest number of

people in the Northern Territory responded that their income was \$160-\$199). Another reason for the low reported use of computers at home in the Northern Territory could be the relatively large proportion of Indigenous people (25.8% of the population compared to 1%-9% in the other states). Figure 3 displays the rates of computer use at home and Internet use anywhere by state/territory.

Figure 3. COMPUTER USE AT HOME AND INTERNET USE AT ANY LOCATION THE WEEK BEFORE THE 2001 CENSUS BY STATE/TERRITORY(a)



(a) Excludes Overseas Visitors and System Created Records

People who identified as Indigenous (Aboriginal, Torres Strait Islanders, or Aboriginal and Torres Strait Islanders) had a much lower rate of computer use than Non-Indigenous people. 44.2% of Non-Indigenous people used a computer at home the week before the 2001 Census, compared to only 18.2% of Indigenous people (see Table 5). Analysis of different form types revealed that of those who were enumerated on Special Indigenous Personal Forms, only 1.3% used a computer at home the week before the Census.

Table 5. COMPUTER USE AT HOME THE WEEK BEFORE THE 2001 CENSUS BY INDIGENOUS STATUS (a)

Indigenous Status	% who used a computer
Indigenous	18.2
Non Indigenous	44.2

(a) Excludes Overseas Visitors and System Created Records

Of those who were not born in Australia, 41.7% used a computer at home (while 44.2% of those born in Australia used a computer). This is displayed in Table 6. Among those who were not born in Australia, computer use varied across year of arrival in Australia (see Table 6). Of those who arrived between 1950 and 1959, 23.1% used a computer the week before the Census, whereas of those who arrived between 2000 and 2001, 54.2% did so. However, those who arrived between 2000 and 2001 were largely young people (43.6% were aged between 15 and 29 years).

Table 6. COMPUTER USE AT HOME THE WEEK BEFORE THE 2001 CENSUS BY BIRTHPLACE AND YEAR OF ARRIVAL IN AUSTRALIA (a)

Birthplace	% who used a computer
Australia	44.2
Elsewhere	41.7
Year of arrival in Australia	
Pre - 1950	16.9
1950 - 1959	23.1
1960 - 1969	33.1
1970 - 1979	40.5
1980 - 1989	49.2
1990 - 1999	54.7
2000 - 2001	54.2

(a) Excludes Overseas Visitors and System Created Records

Education level was a strong indicator of computer use at home. Of respondents who did not go to school, only 5.2% used a computer at home the week before the Census. 23.1% of those who left school at Year 9 or equivalent used a computer at home the week before the Census. Computer use at home was highest for those who completed Year 12 or equivalent at 59.0%. Table 7 displays the rates of computer use at home by highest level of schooling completed.

Table 7. COMPUTER USE AT HOME THE WEEK BEFORE THE 2001 CENSUS BY HIGHEST LEVEL OF SCHOOLING COMPLETED (a)

Education Level	% who used a computer
Still at school	78.3
Did not go to school	5.2
Year 8 or equivalent	8.4
Year 9 or equivalent	23.1
Year 10 or equivalent	35.8
Year 11 or equivalent	45.5
Year 12 or equivalent	59.0

(a) Excludes Overseas Visitors, System Created Records and those aged under 15 years

Respondents who had a qualification other than a trade certificate/apprenticeship (such as a Bachelor degree) had a higher rate of computer use at home (62.6%) compared with those who had a trade certificate/apprenticeship (40.9%) and those who had no qualification (35.6%). See Table 8 for rates of computer use at home by non school qualification.

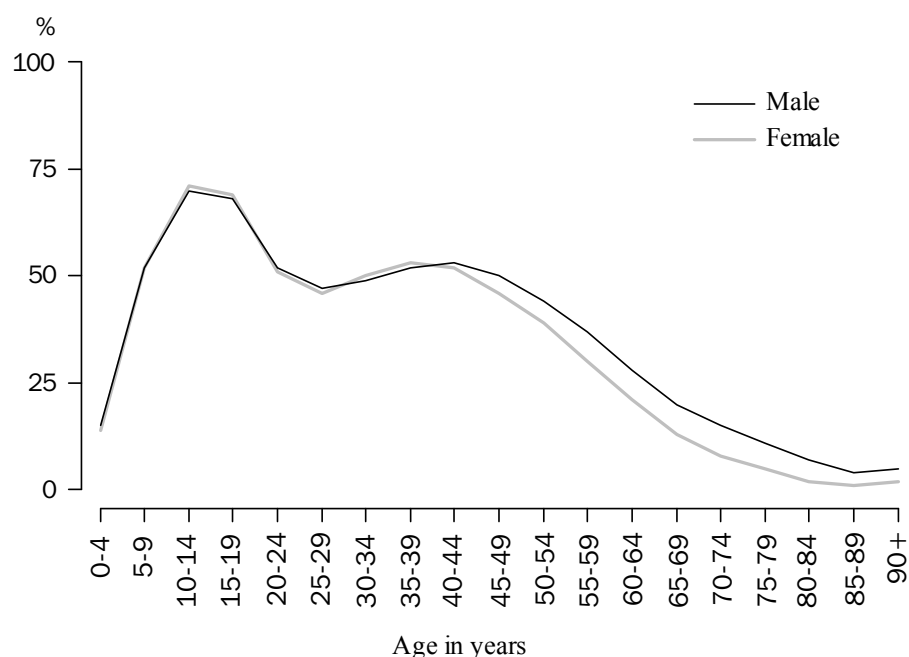
Table 8. COMPUTER USE AT HOME THE WEEK BEFORE THE 2001 CENSUS BY NON SCHOOL QUALIFICATION (a)

Tertiary Qualification	% who used a computer
No Qualification	35.6
Trade certificate/apprenticeship	40.9
Qualification other than trade certificate/apprenticeship (e.g. bachelor degree)	62.6

(a) Excludes Overseas Visitors, System Created Records and those aged under 15 years

There was a small difference in computer use at home between the sexes. 44.7% of males and 41.5% of females used a computer at home the week before the 2001 Census. Throughout the ages of 0-44 years males and females had almost identical rates of computer use at home. However, from the age of 45 years, home computer use by females decreased more sharply than home computer use by males. This is displayed in Figure 4.

Figure 4. COMPUTER USE AT HOME BY AGE AND SEX (a)



(a) Excludes Overseas Visitors and Systems Created Records

Internet use question

38.1% of respondents had used the Internet at some location the week before the Census. Responses to the computer and Internet use questions were strongly related (see Figures 2 and 5). 84.6% of those who used a computer at home the week before the Census used the Internet at some location the week before the Census.

Home was the most common location to use the Internet. *The Household Use of Information Technology Survey* (HUIT, cat no. 8146.0) for the calendar year 2000 found that adults most commonly used the Internet for e-mail, chat sites and general browsing. Interestingly the 2001 Census reported that more people used the Internet both at home and work (6.7%) than only at work (5.6%). A further 3.9% of the population used the Internet elsewhere, a large proportion likely to be in educational institutions (as 10-14 and 15-19 year olds had the largest proportion of 'elsewhere' responses). The locations of Internet use are displayed in Table 9.

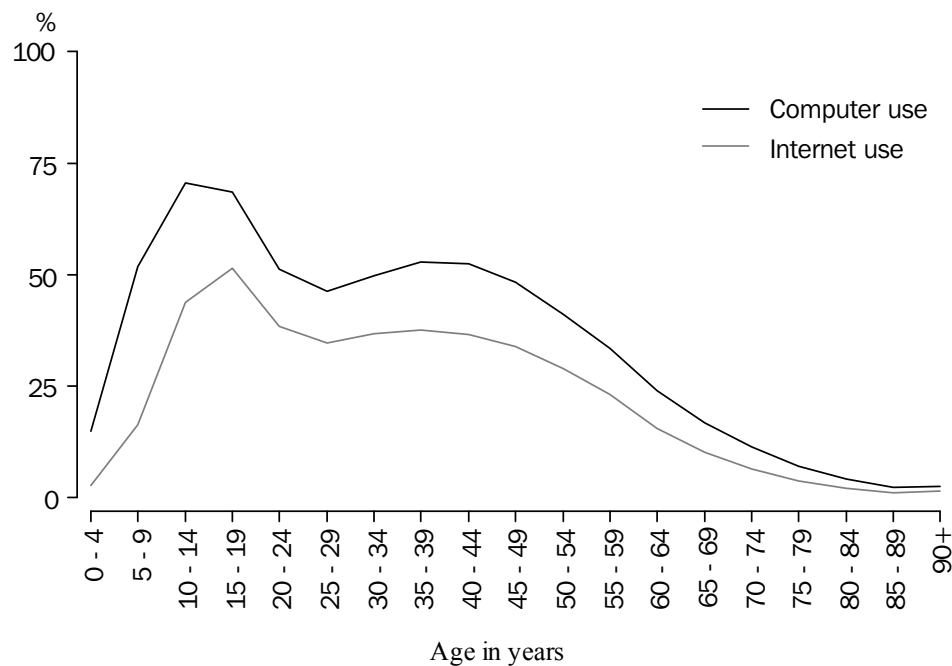
Table 9. 2001 CENSUS DATA ON INTERNET USE BY LOCATION

<i>Option</i>	<i>% of population (a)</i>
No	59.9%
Yes, at home	19.1%
Yes, at work	5.6%
Yes, elsewhere	3.9%
Yes, at home and at work	6.7%
Yes, at home and elsewhere	2.0%
Yes, at work and elsewhere	0.2%
Yes, at home and at work and elsewhere	0.6%
At any location (total of yes responses)	38.1%
Not stated	2.1%

(a) Excludes Overseas Visitors and System Created Records

15-19 year olds were most likely to use the Internet at any location (63.8%) and those aged 65+ were least likely to use the Internet anywhere (only 6.4%). Interestingly, 3.2% of 0-4 year olds and 21.7% of 5-9 year olds used the Internet at some location the week before the Census. This is evidence that it is possible for children to be taught to use the Internet from a young age. Figure 5 displays the rates of both computer and Internet use at home across age groups.

Figure 5. RATES OF COMPUTER AND INTERNET USE AT HOME BY AGE (a)



(a) Excludes Overseas Visitors and System Created Records

When examining Internet use by income (for those aged 15 or more), a similar trend with computer use by income was found (as shown above in Figure 2). Those who had lower than average incomes were more likely to use the Internet. For example, 52.9% of those who had Nil income used the Internet the week before the Census. In contrast only 21.5% of those earning the average income per week (\$200-\$299) used the Internet at any location the week before the Census. As mentioned with computer use, this is probably due to the large number of those aged over 55 years with a weekly income of \$120-\$399.

The Australian Capital Territory had the highest rate of Internet use (56.0%), which was well above the national average (38.1%). As mentioned in the computer use analysis, this may be partially due to the high average income, or the larger proportion of students in the Australian Capital Territory. Figure 3 above displays both computer and Internet use by state/territory.

The Northern Territory recorded the lowest reported use of the Internet (32.4%). Again, this may be due to the low average income in the state (the largest number of people in the Northern Territory responded that their income was \$160-\$199). Another reason for the low reported use of the Internet in the Northern Territory could be the relatively large proportion of Indigenous people in the Northern Territory (25.8% of the population compared to 1%-9% in the other states).

Indigenous people were less likely than Non-Indigenous people to use the Internet. 16.1% of Indigenous people used the Internet at any location the week before the Census, whereas 39.0% of Non-Indigenous people did so (see Table 10). Of those who were enumerated with the Special Indigenous Form, only 2.5% used the Internet at any location.

Table 10. INTERNET USE THE WEEK BEFORE THE 2001 CENSUS BY INDIGENOUS STATUS (a)

Indigenous Status	% who used the Internet
Indigenous	16.1
Non Indigenous	39.0

(a) Excludes Overseas Visitors and System Created Records

As shown in Table 11, those who were not born in Australia had a slightly higher rate of use of the Internet (39.8%) compared to those born in Australia (38.4%). Internet use was highly variable according to the year of arrival in Australia. For example, of those who arrived in Australia between 1950 and 1959, only 19.5% used the Internet the week before the Census. However, of those who arrived in Australia between 2000 and 2001, 61.3% used the Internet the week before the Census. This was probably largely due to age differences in year of arrival. For example, 43.6% of those who arrived between 2000 and 2001 were aged 15 to 29 years.

Table 11. INTERNET USE THE WEEK BEFORE THE 2001 CENSUS BY BIRTHPLACE (a)

Birthplace	% who used the Internet
Australia	38.4
Elsewhere	39.8
Year of arrival in Australia	
Pre - 1950	13.4
1950 - 1959	19.5
1960 - 1969	29.4
1970 - 1979	39.0
1980 - 1989	48.0
1990 - 1999	52.0
2000 - 2001	61.3

(a) Excludes Overseas Visitors and System Created Records

Of those who did not go to school, only 3.9% used the Internet the week before the Census and 17.8% of those who completed school at Year 9 or equivalent used the Internet the week before the Census. Table 12 displays the rates of Internet use by highest level of schooling completed.

Table 12. INTERNET USE THE WEEK BEFORE THE 2001 CENSUS BY HIGHEST LEVEL OF SCHOOLING COMPLETED (a)

Education Level	% who used the Internet
Still at school	73.8
Did not go to school	3.9
Year 8 or equivalent	5.5
Year 9 or equivalent	17.8
Year 10 or equivalent	30.8
Year 11 or equivalent	42.4
Year 12 or equivalent	61.8

(a) Excludes Overseas Visitors, System Created Records and those aged under 15 years

Those who had a qualification other than a trade certificate/apprenticeship (such as a Bachelor degree) were much more likely to use the Internet the week before the Census (65.5%) compared to those with a trade certificate/apprenticeship (36.9%) or those with no qualification (33.1%). Table 13 displays the rates of Internet use by non school qualification.

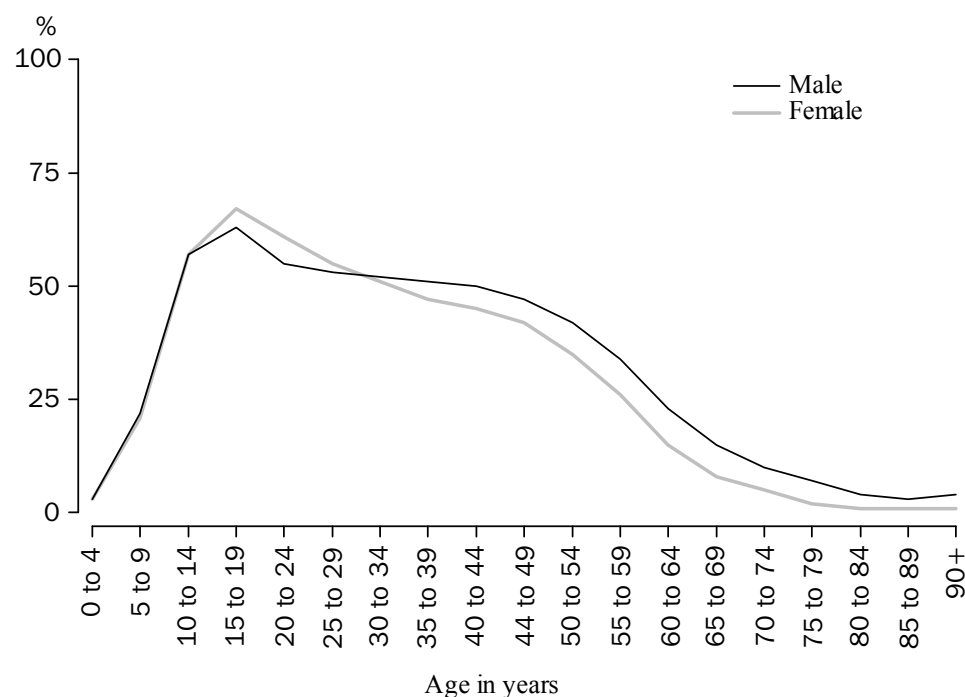
Table 13. INTERNET USE THE WEEK BEFORE THE 2001 CENSUS BY NON SCHOOL QUALIFICATION (a)

Tertiary Qualification	% who used the Internet
No Qualification	33.1
Trade certificate/apprenticeship	36.9
Qualification other than trade certificate/apprenticeship (e.g. bachelor degree)	65.5

(a) Excludes Overseas Visitors, System Created Records and those aged under 15 years

Males were slightly more likely to have used the Internet at any location (39.7%) than females (36.5%). However, females aged 15-29 years were more likely to use the Internet than males of the same age. Males aged over 35 years were more likely to use the Internet than females of the same age. Figure 6 displays trends in Internet use by sex and age.

Figure 6. INTERNET USE BY AGE AND SEX (a)



(a) Excludes Overseas Visitors and System Created Records

6.2 Non-response Analysis

Questions relating to the use of personal computers and the Internet that were unanswered were assigned a code of not stated. Table 14 contains the non-response rates for the 2001 Census computer and Internet use questions.

Table 14. NON-RESPONSE RATES FOR QUESTIONS RELATING TO THE USE OF INFORMATION TECHNOLOGY FOR THE 2001 CENSUS

<i>Question</i>	<i>Number</i>	<i>% of population (a)</i>
Did the person use a personal computer at home last week?	259,551	1.4
Did the person use the Internet anywhere last week?	375,444	2.1

(a) Excludes Overseas Visitors and System Created Records

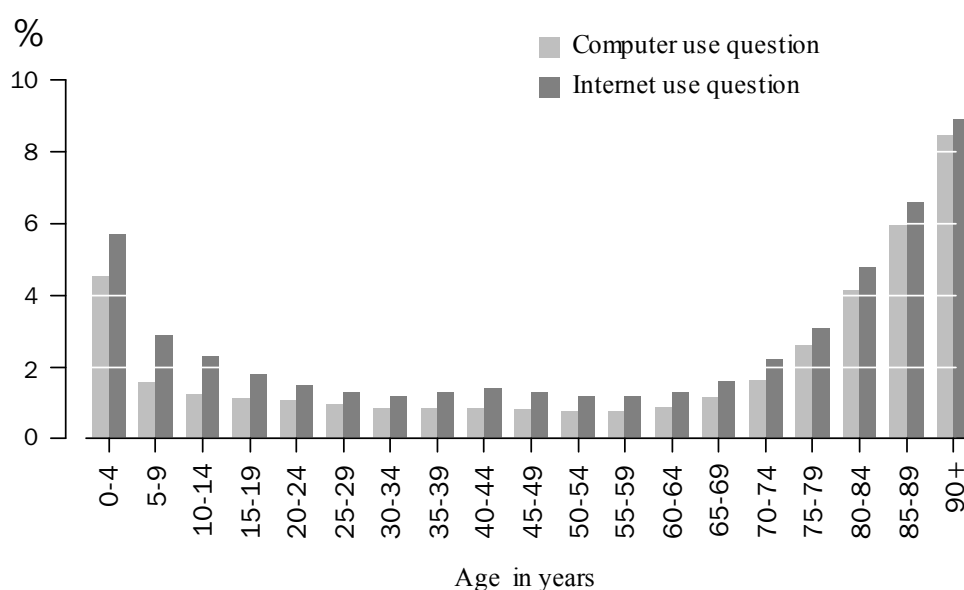
Computer use question

The question relating to the use of a personal computer had a low non-response rate overall (1.4%). However, age seemed to be influential on non-response (see Figure 7). The non-response rate for 0-4 year olds was 4.5%. Non-response rates decreased throughout the ages of 20 to 64 years and there was a sharp increase for those aged 65 years and over. The non-response rate for those aged 90 years or over was 8.5%.

Some parents might have considered the question not applicable to their 0-4 year old children because they perceived they did not have the ability to use a personal computer. There was evidence from the 2001 Census that the question was applicable to 0-4 year olds, as 14.9% of children in this age group were reported to have used a personal computer the week before Census night (see Table 4). Figure 7 displays non-response rates to the computer and Internet use questions by age group.

Of those aged 65 and above, 2.6% did not respond to the question relating to the use of personal computer. This was lower than the non-response rate for the Internet use question for this age group (3.1%). It would seem that the question about computer use was better understood than the question about Internet use by this age group. Unlike the Internet, computers have been used since the 1980s, when many people aged 65 and over on Census night would have been in the workforce.

Figure 7. NON-RESPONSE RATES BY AGE FOR THE 2001 CENSUS QUESTIONS ON COMPUTER AND INTERNET USE (a)



(a) Excludes Overseas Visitors and System Created Records

Of respondents who did not answer the question relating to personal computer use, 53.5% did not answer the question relating to Internet use. It is possible that those who felt that the personal computer question was irrelevant or unimportant felt similarly towards the Internet question. Each Census there is a small proportion of respondents who fill in only a few variables on their form. Thus non-response is often highly correlated between items.

The Northern Territory had a relatively high non-response rate (2.7%) for the question relating to personal computer use, but this was consistent with the higher than average non-response rate for the Northern Territory across most of the Census questions. The average non-response rate across all states and territories was 1.4%. Figure 8 below displays non-response rates by state/territory.

For the question relating to computer use, those who were not enumerated at their usual address had a higher non-response rate (3.6%) than those who were enumerated at their usual address (1.3%).

Internet use question

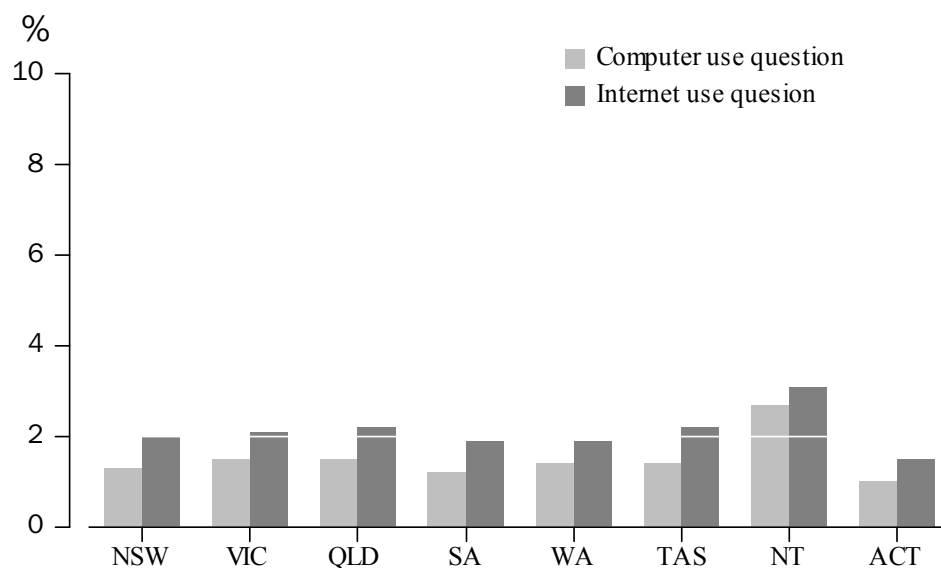
The non-response rate for the question relating to the use of the Internet (2.1%) was slightly higher than for the computer use question, particularly for a mark box question. Similar age related patterns of non-response to the computer use question existed for the Internet use question. There was a high non-response rate for persons aged 0-4 years (5.6%), 5-9 years (2.9%) and 90 years and over (8.9%). Non-response rates sharply increased for those aged 65 years and over (see Figure 7 above).

Similarly to the computer use question, parents answering for children aged 0-4 years may have felt that the question was not applicable because they perceived that their young children would not have the ability to use the Internet. This also may have been the case, to a lesser extent, for children aged 5-9 years. The question relating to Internet use was clearly relevant for some young children, as 3.2% of 0-4 year olds and 21.7% of 5-9 year olds were reported to have used the Internet.

Those who were aged 65 years and over may have felt that the question was irrelevant for them because they were not of working age or did not have access to a computer (87.4% of those aged 65 and over did not use a computer at home in the week before the Census). Those aged 65 years and over may not have understood what the Internet was, as it is a relatively new and evolving technology. Unlike computers, the Internet would not have been used in work places when those aged 65 and over at the time of the 2001 Census were of a working age. They were aged 55 and over in 1991, which was before the Internet was widely used in homes or workplaces.

The non-response rate for the Northern Territory was 3.1% for the question about use of the Internet. This was higher than the non-response rates from other states and territories which were all below 2.3%. Indigenous people also had a high non-response rate (4.0%) compared to non Indigenous people (1.3%). Figure 8 displays the non-response rates for the 2001 Census questions on computer and Internet use by state and territory.

Figure 8. NON-RESPONSE RATES TO THE 2001 CENSUS QUESTIONS ON COMPUTER AND INTERNET USE BY STATE/TERRITORY(a)



(a) Excludes Overseas Visitors and System Created Records

For the Internet use question, those who were not enumerated at their usual address had a higher non-response rate (3.9%) than those who were enumerated at their usual address (2.0%).

6.3 Data Anomaly

As mentioned earlier, the processing of Internet use question did not include a cross check of respondents stating that they used the Internet at work, and then subsequently indicating that they did not have a job. While it is illogical for these two answers to coexist, it was consistent with the minimalist editing approach of the ABS not to exclude either answer. Examining the data for the use of the Internet and employment status revealed that 57,628 people (or 0.3%) responded that they did not have a job, and that they accessed the Internet at work.

The question relating to Internet use was 'Did the person use the Internet anywhere last week?' Whereas the employment question was phrased '*Last week*, did the person have a full time or part time job of any kind?' (see Figure 9). As respondents read the question relating to Internet use, they may have considered their answer before reading the time specification (last week) because it was on the end of the question. Participants may not have even read the end of the question, where 'last week' was specified. The employment question however, clarified the time specification (last week) before the content of the question was read. This inconsistency of question format might be a possible factor leading to this result. It may be more appropriate that (where applicable) time be qualified at the beginning of questions in future censuses.

Figure 9. 2001 CENSUS QUESTION ON LABOUR FORCE STATUS

<p>32 <i>Last week, did the person have a full-time or part-time job of any kind?</i></p> <ul style="list-style-type: none"> ▪ Mark one box only. ▪ A 'job' means any type of work including casual or temporary work or part-time work, if it was for one hour or more. ▪ See page 11 of the Census Guide for more information. 	<p><input type="radio"/> Yes, worked for payment or profit</p> <p><input type="radio"/> Yes, but absent on holidays, on paid leave, on strike or temporarily stood down</p> <p><input type="radio"/> Yes, unpaid work in a family business</p> <p><input type="radio"/> Yes, other unpaid work ▶ Go to 42</p> <p><input type="radio"/> No, did not have a job ▶ Go to 42</p>
--	--

Further examination of the group that stated they did not have a job and accessed the Internet at work, revealed some common characteristics and possible explanations for the unexpected result. 66.0% of the group were full-time or part-time students. This would suggest a large portion of the problem was that some students considered using Internet for academic reasons or at an educational institution was using the Internet 'at work'.

Of the 57,628 who answered that they didn't have a job and that they accessed the Internet at work, 21,518 or 37.1% were not born in Australia. 17,008 (or 29.5% of the group) spoke a language other than English at home. This may indicate that either or both of the questions 'Did the person use the Internet anywhere last week?' and '*Last week, did the person have a full-time or part-time job of any kind?*' were not thoroughly understood by migrants and those who spoke a language other than English at home.

Based on these results, it is recommended that for future Censuses, the question 'Did the person use the Internet anywhere last week?' provide an extra option of at 'school, tertiary institution, or other educational institution'. If respondents see their educational institution as an option other than work, they might be less likely to state that they used the Internet 'at work' when they did not have a job.

6.4 Comparison with other Data

The Census may be compared to other sources of ABS data, with appropriate care. There are differences between the Census and other ABS surveys in the scope, method of enumeration (self or interviewer), and time period that the research is undertaken (reference period) which contribute significantly to resulting data. Therefore comparisons between the Census and other ABS research must be interpreted with caution.

6.4.1 Household Use of Information Technology Survey

The ABS publication *Household Use of Information Technology, Australia 2000* (HUIT) (Cat. no.8146.0) contains the combined results of four quarterly surveys conducted in 2000. These surveys include more detailed items on information technology than those in the 2001 Census.

Scope

While the Census is designed to be a total enumeration of the population, ABS surveys collect data from representative samples to draw inferences about the population. Data from the four components of the HUIT Survey produced a combined sample of 13,000 households. The scope of the survey excluded remote and sparsely populated areas, where the Statistical Local Area (SLA) contained fewer than 200 people. This exclusion generally had little impact on the estimates produced for the States and Territories, with the exception of the Northern Territory where people in remote and sparsely populated areas account for 20% of the population.

Enumeration methodology

The HUIT was enumerated by a trained interviewer, whereas the Census was self enumerated. Having an interviewer present could have led to a variation in the quality of responses, as the interviewer could clarify definitions and assist the respondent.

Reference period

The 2001 Census required respondents to consider their use of information technology the week before Census night (August 7, 2001). In contrast, the HUIT Survey required participants to consider their use of information technology for 12 months prior to the time of answering the survey (during 2000). Consequently, data from the HUIT Survey is based on use of information technology from early 1999 to late 2000. Different reference periods mean that variations in results between the HUIT Survey and the 2001 Census could be attributed to time related trends in information technology use.

Questions

There were a number of questions in the HUIT Survey to gauge computer and Internet use, whereas the Census only contained one question for computer use and one for Internet use.

To measure computer use, the HUIT Survey asked:

- Do you use a computer at home?
- In the last 12 months did you use a computer at work? and
- In the last 12 months did you use a computer at any of these places? (followed by a list of locations - School, TAFE/Tertiary institution, public library, Government agency/department/shopfront, Internet/cyber cafe or similar, Community or voluntary organisation, neighbour/friend/relative's house and other)

To measure computer use, the 2001 Census asked:

- Did the person use a personal computer at home last week? (the week before Census night, Tuesday 7 August 2001).

To measure Internet use, the HUIT Survey asked:

- Do you access the Internet at home?
- In the last 12 months, did you access the Internet at work?
- In the last 12 months, did you use the Internet at any of these places? (followed by the same list of locations in the HUIT computer use question above)

To measure Internet use, the 2001 Census asked:

- Did the person use the Internet anywhere last week?

Data comparison

In comparing the 2000 HUIT data with 2001 Census data, the samples must be matched as closely as possible. To ensure this, some data has been excluded from the 2001 Census data. 2001 Census data collected from Statistical Local Areas (SLAs) with populations of less than 200 was excluded. As the HUIT excluded people aged under 18, those under 18 were excluded from the 2001 Census data. The data on computer and Internet use rates from the 2001 Census are presented as a proportion of the rates reported in the HUIT survey in Tables 15 and 16.

The 2001 Census and the HUIT Survey data were relatively closely aligned on computer use at home for all age groups. Overall, the 2001 Census reported 5% less computer use than the HUIT data. Table 15 displays a comparison of the data from the 2001 Census and the HUIT Survey on computer use by age group.

Table 15. PERCENTAGE OF ADULTS WHO USED A COMPUTER AT HOME BY AGE, COMPARISON OF 2001 CENSUS DATA WITH HUIT DATA(a)

<i>Age Group</i>	<i>2001 Census</i>	<i>HUIT</i>
18-24	55%	59%
25-34	49%	50%
35-44	53%	59%
45-54	45%	53%
55-64	29%	33%
65 and over	10%	12%
Total	41%	46%

(a) Excludes those aged under 18, those in remote and sparsely settled areas, Overseas Visitors and System Created Records

The 2001 Census measured 8% less use of the Internet than the HUIT Survey overall. Table 16 displays a comparison of 2001 Census data and HUIT Survey data on Internet use by age group.

Table 16. PERCENTAGE OF ADULTS WHO USED THE INTERNET AT ANY LOCATION BY AGE, COMPARISON OF 2001 CENSUS DATA WITH HUIT DATA (a)

<i>Age Group</i>	<i>2001 Census</i>	<i>HUIT</i>
18-24	60%	75%
25-34	54%	62%
35-44	49%	52%
45-54	42%	47%
55-64	25%	26%
65 and over	6%	9%
Total	39%	47%

(a) Excludes those aged under 18, those in remote and sparsely settled areas, Overseas Visitors and System Created Records

The 2001 Census data reported lower rates of computer use at home and Internet use at any location than the HUIT Survey. This difference could be partially due to the fact that the participants in the HUIT Survey were asked to consider computer and Internet use over the last 12 months, whereas the 2001 Census respondents were only to consider one week.

It is possible that some 2001 Census respondents were on holiday or taking a break from study and therefore not using a computer or the Internet during the week before the 2001 Census. However, this should not have impacted greatly on the data, as logically, a person who uses a computer or the Internet over a 12 month period would also be very likely to have done this at least once in any given week.

As mentioned earlier, the HUIT Survey was enumerated by a trained interviewer who could prompt, clarify definitions and ensure that the form was enumerated properly. It is likely that this led to higher quality of responses than the self enumerated 2001 Census.

One of the Internet use questions in the HUIT Survey suggested many options where the respondent might have used the Internet (see above). This would be likely to prompt participants to remember that they did indeed use the Internet in a place other than home or work, whereas in the 2001 Census, the option given for a place other than home or work was, broadly, 'elsewhere'. This may have resulted in the HUIT Survey detecting more Internet use.

It was recommended that for future Censuses, 'educational institution' be included as another site for Internet use. This may help to prompt respondents to consider their use of the Internet at an educational institution when they may not otherwise have remembered.

The Census reported that those aged 65 and over comprised 17.0% of the adult population, whereas only 15% of the HUIT sample was comprised of those aged 65 and over. The sampling discrepancy may be a factor in explaining why the HUIT Survey data on computer and Internet use was different from the Census data for those aged 65 and over.

6.4.2 *The Children's Participation in Cultural and Leisure Activities Survey*

An ABS survey called *Children's Participation in Cultural and Leisure Activities* (CPCLA) (Cat. No 4901.0) was conducted during 2000. This survey was conducted using a sub-sample

(9,700 children aged 5-14 years) of the Monthly Population Survey (described in *Labour Force, Australia*, Cat. no. 6203.0). The survey measured children's participation in cultural and leisure activities over a 12 month period. Included were questions about the use of computers and the Internet.

Scope

Excluded from the CPCLA Survey sample were those aged under 5 years and over 14 years, those in remote and sparsely settled areas (SLAs of less than 200 people), Overseas Visitors, children of Australian permanent defence force members, and children in non private dwellings. The same exclusions were applied to the Census data when comparing the two sources, with the exception of children of Australian permanent defence forces. Children of Australian permanent defence forces were not excluded from the Census data because it would be impossible to reliably identify them. It is thought that this would be unlikely to greatly impact the data, due to the relatively small number of children in this population.

Enumeration method

The CPCLA Survey was enumerated by a trained interviewer, unlike the 2001 Census which was self enumerated. Similarly to the HUIT Survey, it is likely that this led to a variation in overall quality of responses.

Reference period

The CPCLA Survey was conducted during April 2000 and participants were asked about the use of information technology 12 months prior to the survey. The 2001 Census asked respondents to consider their use of information technology the week before Census night (August 7, 2001). Thus when considering data comparisons with the 2001 Census, the different reference periods must be kept in mind.

Data Comparison

The CPCLA Survey generally found higher rates of use of information technology. Table 17 shows the comparisons between CPCLA Survey and Census data.

Table 17. THE CHILDREN'S PARTICIPATION IN CULTURAL AND LEISURE ACTIVITIES SURVEY COMPARED TO THE 2001 CENSUS FOR USE OF INFORMATION TECHNOLOGY(a)

	<i>2001 Census</i>	<i>CPCLA</i>
Computer use at home	61%	71%
Internet use at any location	42%	47%

(a) Excludes those aged under 5 years and over 14 years, those in remote and sparsely settled areas, those in non private dwellings, Overseas Visitors and System Created Records

Despite differences in enumeration methods and reference period, the data on childrens use of information technology from the 2001 Census and the CPCLA Survey were relatively closely matched.

7. CONCLUSIONS

Data analysis revealed one significant concern in data quality. This was the unexpected result of 57,628 people, or 0.3% of the population responding that while they accessed the Internet at work the week before the Census, they did not have a job the week before the Census. Students and those who spoke a language other than English at home made up a large proportion of these respondents.

Firstly, this result indicates that there was variation in understanding of the question. Secondly, it identifies a limitation of self enumeration compared to enumeration through a trained interviewer. A interviewer would have had the opportunity to question the lack of consistency across questions, and try to determine the true response. Thirdly, the result highlights that users of the data should be aware of the limited editing policy of the ABS, when cross classifying data items.

Non-response analysis identified that those who were very young had high non-response rates. This is considered to be largely due to parents considering questions about the use of information technology as irrelevant for their children aged under 4 years. Those who were aged over 65 had high non-response rates for both the computer and Internet use questions. This is thought to be largely due to those aged over 65 either not relating to the concepts of computer and Internet use, or thinking that the question was not applicable to them.

Comparisons of the Census data with both the Household use of Information Technology Survey (HUIT) and the Children's Participation in Cultural and Leisure Activities Survey (CPCLA) revealed that the Census reported lower usage of both computers and the Internet. This was thought to be largely because the HUIT Survey and the CPCLA Survey asked respondents to report on information technology use over a 12 month period whereas the Census asked respondents to report on use over a one week period.

Rates of multi-marking and discrepancies were low and not considered a concern.

8. RECOMMENDATIONS

Based on the evaluation reported in this paper, the following recommendations are made:

- It is recommended that the question relating to the use of the Internet include an option of educational institution as a site of access in future censuses. This should help differentiate between accessing the Internet at 'work' as opposed to 'educational institution'. Including this extra option could also aid in memory prompting.
- For the data to be more relevant for comparisons with other ABS surveys, the Census could ask about the use of information technology over 12 months rather than one week. This would avoid missing out data from regular users who happen not to use information technology the week before the Census. A question such as 'over the last 12 months, have you used a personal computer at home?' would address this problem.
- Non-response to questions about information technology was a particular problem for the old and the very young. It is recommended that campaigns designed to prevent non-response are directed at those from these age groups (and those who respond on behalf of people in these age groups).
- It is recommended that all questions including a time period (i.e. last week), have the time qualified at the beginning of the question rather than at the end. The problem of respondents not reading the end of the question (and therefore the time period) because they believe they already knew the answer, would be less likely to occur if time was qualified first.

9. OTHER INFORMATION AVAILABLE

ABS Publications

Household use of Information Technology, May 2001 (Cat No. 8146.0)

Childrens Participation in Cultural and Leisure Activities, April 2000 (Cat No. 4901.0)

Other Research

Australian Census Analytical Program "*Digital Divide? Who uses computers and the Internet in Australia today?*"

This project conducted by external researchers to the ABS will examine social, economic and regional factors affecting different levels of use of computers and the Internet in 2001. The project will use data from the 2001 Census, supplemented by information from other sources.

The final report from the project is due in late 2003. Further details may be obtained from the Director, Census Products and Services by phone (02) 6252 7007.

GLOSSARY

Automatic Coding (AC) - A system used to record responses (after scanning) without manual intervention.

Census Guide - a booklet providing guidance on how to complete a Census Form and backgrounds to the questions. A Census Guide was distributed with each Census Form.

Census Inquiry Service (CIS) - a phone-based facility set up to provide translation and other information services relating to the 2001 Census.

Data Capture (DC) - the process that ensures all marks on the Form (mark box or writing) are reproduced on an image.

Discrepancy Rate - the rate at which Quality Management and subsequent Adjudication coding differed from that of an individual human or system coding. It is expressed as a percentage and is regarded as the error rate within final data.

DPC - Data Processing Centre for the 2001 Census. A centralised facility which was located in Ultimo, Sydney.

DQI - Data Quality Investigation. A DQI Team operated at the DPC, conducting additional coding exercises to uncover data quality issues.

Dress Rehearsal (DR) - generally the last in a regular series of Census tests of field materials and procedures. This occurs around a year before Census date. The 2001 DR was conducted on 27 June 2000 and involved a total of 40,097 dwellings in Melbourne and Mildura.

Focus Groups - small groups assembled by the ABS who reflect a broad cross section of the population. The participants consider Census questions and raise concerns or problems they have about the questions.

Mark boxes - follow a Census question with options for responses. Responses should be a horizontal mark within at least one of a possible series of mark boxes.

Quality Management - the process of regular scrutiny of an amount of coding work.

SIPF - Special Indigenous Personal Form. The standard form used in the enumeration of Indigenous communities. Wording of questions was modified slightly to better suit respondents in Indigenous Communities. The form was enumerated by an interviewer.

Census Papers

2001 Census Papers:

- 03/04 *2001 Census: Income*
- 03/03 *2001 Census: Computer and Internet Use*
- 03/02 *2001 Census: Housing*
- 03/01b *2001 Census: Ancestry - Detailed Paper*
- 03/01a *2001 Census: Ancestry - First and Second Generation Australians*
- 02/03 *2001 Census: Form Design Testing*
- 02/02 *Report on Testing of Disability Questions for Inclusion in the 2001 Census*
- 02/01 *2001 Census: Digital Geography Technical Information Paper*

1996 Census Working Papers:

- 00/4 *1996 Census Data Quality: Income*
- 00/3 *1996 Census Data Quality: Industry*
- 00/2 *1996 Census Data Quality: Qualification Level and Field of Study*
- 00/1 *1996 Census Data Quality: Journey to Work*
- 99/6 *1996 Census Data Quality: Occupation*
- 99/4 *1996 Census: Review of Enumeration of Indigenous Peoples in the 1996 Census*
- 99/3 *1996 Census Data Quality: Housing*
- 99/2 *1996 Census: Labour Force Status*
- 99/1 *1996 Census: Industry Data Comparison*
- 97/1 *1996 Census: Homeless Enumeration Strategy*
- 96/3 *1996 Census of Population and Housing: Digital Geography Technical Information Paper*
- 96/2 *1996 Census Form Design Testing Program*

1991 Census Working Papers:

- 96/1 *Income*
- 95/1 *Housing*
- 94/4 *Ancestry*
- 94/3 *Disability*
- 94/2 *Education*
- 94/1 *Labour Force Status*
- 93/6 *Aboriginal/Torres Strait Islander Counts*
- 93/5 *Public Communications*
- 93/4 *Comparison of Census and PES Responses*
- 93/3 *Posted-in Forms*
- 93/2 *Self Coding*
- 93/1 *Sequencing Instructions*

These papers are available on the ABS web site at <<http://www.abs.gov.au>>. From the ABS home page, select **Census -> (Census Information) Fact Sheets and Census Papers -> (Other Publications) Census Papers.**

If you have further data quality queries, please contact the Assistant Director, Census Evaluation by telephone: (02) 6252 5611 or email: <joanne.healey@abs.gov.au>.