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ADULT LITERACY AND LIFE SKILLS SURVEY: USER GUIDE

AUSTRALIA

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CONTENTS

INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

NOTES

USING THIS PUBLICATION

Appropriate use and interpretation of the Adult Literacy and Life Skills Survey (ALLS) results relies upon knowledge of what information was collected, how the information was collected and how the information was used to produce final estimates. This User Guide covers these topics in several chapters: Survey content; Survey methodology; Data processing; Data quality; and Output and Dissemination.

In addition, a comprehensive list of the data items from the survey is available (as a datacube) with this User Guide on the ABS web site <www.abs.gov.au>.

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
ALL	International Adult Literacy and Life Skills Survey
ALLS	Adult Literacy and Life Skills Survey
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
ARA	any responsible adult
ASCED	Australian Standard Classification of Education
ASCL	Australian Standard Classification of Languages
ASCO	Australian Standard Classification of Occupations
ASGC	Australian Standard Geographical Classification
CAI	computer assisted interviewing
CTB	core task booklet
CURF	confidentialised unit record file
DEST	Australian Government Department of Education, Science and Training
DEWR	Australian Government Department of Employment and Workplace Relations
ERP	estimated resident population
IALS	International Adult Literacy Survey
MTB	main task booklet
nfd	not further defined
OECD	Organisation for Economic Co-operation and Development
RADL	Remote Access Data Laboratory
SAL	Survey of Aspects of Literacy
SE	standard error
SET	Survey of Education and Training
SEW	Survey of Education and Work

INTRODUCTION

BACKGROUND TO SURVEY

The Adult Literacy and Life Skills Survey (ALLS) was conducted in Australia as part of an international study coordinated by Statistics Canada and the Organisation for Economic Co-operation and Development (OECD). The conduct of ALLS in Australia was jointly funded by the Department of Education Science and Training (DEST), the Department of Employee and Workplace Relations (DEWR) and the ABS. Other countries that have participated, or are currently taking part, in the study include the United States of America, Bermuda, Canada, Italy, Mexico, Norway, Switzerland, Hungary, the Netherlands, New Zealand and South Korea.

The ALLS is designed to identify and measure literacy, numeracy and problem-solving skills, which can be linked to social and economic characteristics both across and within countries. An additional literacy measure, health literacy, is also available to countries who request it, as Australia has done for this survey. The key objectives of the survey are to profile the distribution of prose literacy, document literacy, numeracy, analytic reasoning and health literacy in the adult population (15 to 74 years of age), and to identify sub populations whose performance in these skill domains may place them at risk.

The ALLS will be the second survey of its type conducted in Australia. Its predecessor, the International Adult Literacy Survey (IALS), was conducted in Australia in 1996 as the Survey of Aspects of Literacy (SAL). Of the five literacy domains available from the 2006 ALLS only two, prose and document literacy, are directly comparable to those derived from the SAL. The quantitative literacy domain, derived from the 1996 SAL, was narrowly focused on numeracy competency and did not necessarily emphasise real-life tasks which demand more diverse numeracy skills. Consequently, an expanded concept of adult numeracy has been incorporated in the 2006 ALLS numeracy scale. As a result of these conceptual differences, the two scales can not be compared. The problem solving and the health literacy domains are additions to the 2006 ALLS and hence no time series information is available. Key findings from the 2006 ALLS are presented in *Adult Literacy and Life Skills, Summary results, Australia* (cat. no 4228.0).

METHODOLOGY

The ALLS collected information from July 2006 to January 2007 from 8,988 private dwellings throughout non-remote areas of Australia. The sample design ensured that within each state and territory, each household had an equal chance of selection. Information was obtained from one person aged 15 to 74 years in the selected household. If there was more than one person of this age, the person interviewed was selected at random.

While the survey was initially developed by Statistics Canada, the ABS together with DEST, DEWR and a wide range of users of the survey data with interests in adult literacy, reviewed the international survey content. Some minor adaptations to survey questions and exercises were made to suit the Australian context. As for all ABS surveys, extensive testing was carried out to ensure that the survey would collect objective and high quality data.

The 2006 ALLS was conducted under the authority of the Census and Statistics Act 1905. The ABS sought the willing cooperation of households in the survey. The confidentiality of all information provided by respondents is guaranteed. Under this legislation, the ABS cannot release identifiable information about households or individuals. All aspects of

METHODOLOGY *continued*

the ALLS implementation were designed to conform to the Information Privacy Principles set out in the Privacy Act 1988, and the Privacy Commissioner was informed of the details of the proposed survey.

Standard ABS interviewing techniques were used and the questionnaire was designed to be administered by experienced ABS interviewers, who had received specific training on this survey. The questionnaire was further supported by detailed interviewer instructions, covering general procedural issues as well as specific instructions relating to individual questions. As for all ABS surveys, standard ABS procedures (including office coding) and systems ensure the collection of objective and high quality data. The questionnaire is not fully indicative of the range of information available from the survey, as additional items were created in processing the data, and ABS classifications were applied to raw data inputs. Furthermore, some questions were asked solely for the purpose of enabling or clarifying other questions, and are not available in survey results.

MEASURES OF LITERACY

The assessment component of the ALL survey provides information on knowledge and skills in the following five domains: prose literacy, document literacy, numeracy, problem solving and health literacy. In the 1996 SAL only three domains were assessed. These domains were prose literacy, document literacy and quantitative literacy. The addition of problem-solving, and health literacy as well as the expansion of the quantitative literacy to numeracy provides extra dimensions to the assessment of adult skills. A number of prose and document literacy tasks administered in the 1996 SAL have been retained for the 2006 ALLS to provide comparison of levels of literacy over time. Both SAL and ALLS measured skills in the official language, which in Australia is English.

The five domains can be defined as follows:

- Prose Literacy: The knowledge and skills needed to understand and use various kinds of information from text including editorials, news stories, brochures and instructions manuals;
- Document Literacy: The knowledge and skills required to locate and use information contained in various formats including job applications, payroll forms, transportation schedules, maps, tables and charts;
- Numeracy: The knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations;
- Problem Solving: Problem solving is goal-directed thinking action in situations for which no routine solution procedure is available. The understanding of the problem situation and its step-by-step transformation, based on planning and reasoning, constitute the process of problem solving; and
- Health literacy: As a by-product of the above domains, health literacy is defined as the knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy.

INFORMATION COLLECTED

The ALLS is divided into the following sections:

- Background Questionnaire (including the household questionnaire); and
- Assessment component:
  - Core Task Booklet; and
  - Main Task Booklet

Background Questionnaire

The initial household component of the survey was designed to collect basic information from a responsible adult about all persons in the selected household— age, sex, marital status, country of birth.

A personal interview was then conducted with one randomly selected person, aged 15 to 74 years, on the following topics:

- General demographic information
- Linguistic information
  - first language learned and most used at home
  - self-assessed proficiency in spoken English
  - reading and writing proficiency in non-English language
- Parental information
  - occupation
  - educational attainment

Background Questionnaire continued

- country of birth
- Labour Force activities:
  - current labour force status
  - labour force activities in the last 12 months
  - hours worked
  - occupation and industry of main job
  - job tenure
- Literacy and numeracy practices at work and daily life
- Frequency of reading and writing activities
- Participation in education and learning
  - involvement in different types of learning
  - incidence of education and learning
  - reasons for pursuing education and learning
  - volume of education undertaken
- Social capital and well-being
  - volunteering, civic participation
  - physical and psychological well being
- Information and communication technology
  - access, types and usage
  - purposes and intensity of computer use
  - purposes and intensity of Internet use
  - self assessment of skills
- Personal and household income

Further information about the content of the survey can be obtained by referring to the data item list available (as a datacube) with this user guide on the ABS website <www.abs.gov.au>, and the glossary (p. 41).

Core task booklet

After the background questionnaire, the randomly selected person completed the core task booklet (CTB). The CTB component is designed to identify respondents who are unlikely to be able to complete the exercises included in the main task booklet (MTB). The CTB contains six basic questions for the respondent to complete. Only respondents who correctly answered a minimum of three questions for the CTB moved on to the MTB.

Main task booklet

The exercises in the MTB, which are more numerous and diverse than those in the CTB in complexity and subject matter, are designed to provide an understanding of the literacy skills of the general adult population.

Each booklet consists of two, of a possible eight, blocks of questions. The blocks of questions measure different skill domains:

- Blocks 1 to 4 measure Prose and Document Literacy
- Blocks 5 to 6 measure Numeracy
- Blocks 7 to 8 measure Problem-solving

These blocks were then distributed across 28 different booklets with different combinations of blocks. This was to ensure a broad coverage of the skill domains.

Main task booklet continued

A fifth scale measuring health literacy proficiency was produced as a by-product of the above testing process. The production of the health literacy scale was an additional service provided to participating countries. The survey contained 191 daily tasks that were judged to measure health-related activities in five domains: health promotion (60 items), health protection (65 items), disease prevention (18 items), health-care and disease management (16 items), and navigation (32 items).

SKILL LEVELS

In ALLS, each respondent was required to complete one MTB which consisted of tasks from two of the possible eight blocks of questions. The full collection of blocks is required to cover all the concepts to be tested. However, individual respondents were not tested on all skill domains. Each respondent is given a score for each domain, based on their proficiency in their allocated MTB and responses in the background questionnaire.

For each literacy domain, proficiency is measured on a scale ranging from 0 to 500 points. Each person's score denotes a point at which they have an 80 per cent chance of successfully completing tasks with a similar level of difficulty. To facilitate analysis, these continuous scores have been grouped into 5 skill levels (only 4 levels were defined for the problem solving scale) with Level 1 being the lowest measured level of literacy. The levels indicate specific sets of abilities, and therefore, the thresholds for the levels are not equidistant. As a result, the ranges of scores in each level are not identical. In fact, for the prose literacy, document literacy, numeracy and health literacy domains, Level 1 captures almost half of the scale. The thresholds for the problem solving domain are set somewhat differently and Level 1 covers precisely half of the scale.

The relatively small proportions of respondents who actually reached Level 5 often resulted in unreliable estimates of the number of people at this level. For this reason, whenever results are presented in the main report by proficiency level, Levels 4 and 5 are combined.

Level 3 is regarded by the survey developers as the "minimum required for individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy" (*Learning a Living: First Results of the Adult Literacy and Life Skills Survey*, available from Statistics Canada's website (www.statcan.ca)). For more information on the literacy domains, skill levels and details on how literacy is measured, refer to the Appendices in this User Guide, or the above report from Statistics Canada.

Skill level estimates

In order to minimise respondent burden, not all literacy domains were directly assessed for each respondent. ALLS used a matrix-sampling design to assign assessment booklets to individuals so that a comprehensive picture of the literacy achievements across the country could be assembled from the components completed by each individual. ALLS relied on Item Response Theory scaling to combine the individual responses to provide accurate estimates of literacy achievement in the population. With this approach, however, aggregations of individuals scores can lead to biased estimates of population characteristics. To address this, the ALLS scaling procedures also used a multiple imputation or "plausible scores" methodology to obtain proficiency scores in literacy for all individuals, even though each individual responded to only a part of the assessment item pool. By using all available data, for each respondent five "plausible scores" were generated for each of the five domains measured.

Skill level estimates continued

For simple point estimates in any of the literacy domains, it is sufficient to use one of the corresponding five plausible scores (chosen at random) to derive population estimates of the levels of literacy. However, a more robust point estimate can be obtained by taking the average of the five weighted estimates produced from each of the five plausible scores, which can be computed as follows:

$$\hat{\theta}_{mean} = \frac{1}{5}\sum_{i=1}^{5}\left(\hat{\theta}_i\right)$$

where:

$\hat{\theta}_{mean}$ = the mean value of the five weighted sample estimates of the five plausible values$\hat{\theta}_i$

All literacy estimates presented in *Adult literacy and Life Skills, Summary results, Australia* (cat. no 4228.0), are obtained by taking the average of the five weighted estimates from each of the plausible values.

All five plausible scores, as well as the 60 replicate weights, are used in order to more reliably compute the standard errors. This is covered in more detail in chapter 5 Data Quality.

COMPARABILITY OF ALLS WITH THE PREVIOUS SURVEY OF ASPECTS OF LITERACY

Results of the previous adult literacy survey, 1996 SAL were published in *Aspects of Literacy: Profiles and Perceptions, Australia* (cat. no. 4226.0) and *Aspects of Literacy: Assessed Skill Levels, Australia* (cat. no. 4228.0.).

Essentially the main components of the survey, a background questionnaire and objective assessments were the same, however additional literacy domains were included in the 2006 survey. Of the five literacy domains available from the 2006 ALLS only two, prose and document literacy, are directly comparable to those derived from the 1996 SAL.

The quantitative literacy domain, derived from the 1996 SAL, was narrowly focused on numeracy competency and did not necessarily emphasise real-life tasks which demand more diverse numeracy skills. Consequently, an expanded concept of adult numeracy has been incorporated in the 2006 ALLS numeracy scale. As a result of these conceptual differences, the two scales can not be compared. The problem solving and the health literacy domains are additions to the 2006 ALLS and hence no time series information will be available.

The information in 2006 was gathered using computer assisted interviewing methodology, while the 1996 survey used a paper questionnaire to collect information.

COMPARABILITY OF ALLS WITH THE PREVIOUS SURVEY OF ASPECTS OF LITERACY *continued*

The main differences between the 1996 and 2006 surveys can be summarised as follows:

- the addition of the numeracy, problem solving and health literacy scales.
- the addition of informal learning.
- more limited information collected on health conditions.
- the addition of the SF-12 Health Survey, which provides scales on mental and physical functioning and overall health-related-quality of life.
- the introduction of the Australian Standard Classification of Education (ASCED) in 2001 to classify educational activity by the level and field of activity. The 1996 survey used the previous classification of Australian Bureau of Statistics Classification of Qualifications (ABSCQ).
- the introduction of the Australian and New Zealand Standard Classification of Occupations (ANZCO) and Australian and New Zealand Standard Industrial Classification 2006 (ANZSIC06) to classify occupation and industry.

The ABS can provide additional advice on comparisons between the two surveys.

COMPARABILITY OF ALLS WITH OTHER EDUCATION AND TRAINING SURVEYS

The ALLS is an international comparative study designed to provide participating countries, with information about the skills of their adult populations. The international nature of the survey means that data between countries are comparable as essentially the same questionnaire and assessments were used in all participating countries. A Unit Record File of the survey results from first wave countries can be requested from the Statistics Canada website <www.statcan.ca>.

The ALLS is one of various education and training surveys conducted by the ABS. Other education and training surveys include the annual Survey of Education and Work (SEW), the four-yearly Survey of Education and Training (SET) and the Adult Learning Survey. The Census of Population and Housing also collects some educational information.

Wherever possible, ABS standard question modules were used in ALLS to ensure comparability of data with other education and training surveys. Therefore the following topics are directly comparable with other ABS surveys where the standard modules are used:

- household characteristics;
- current labour force status; and
- educational attainment.

The table below provides a summary of comparability between the education and training concepts collected in ALLS and other surveys.

EDUCATION AND TRAINING CONCEPTS COLLECTED IN ALLS AND OTHER SURVEYS

Topic collected in ALLS	*2006 SEW*	*2006/07 Adult Learning*	*2005 SET*	*2006 Census*
Educational attainment	Yes	Yes	Yes	Yes
Education participation	No	Yes	No	No
Current Study	Yes	Yes	No	Yes
Labour force status	Yes	Yes	Yes	Yes
Household Income	No	Yes	Yes	Yes

COMPARABILITY OF ALLS WITH OTHER EDUCATION AND TRAINING SURVEYS *continued*

The SEW is designed to provide a snapshot of the participation and attainment of the population. This survey's main focus is first, on young people and their transitions from education to other study and/or work, and second, on the study experiences and attainment of the working population. The SEW has been run as the May supplementary to the Labour Force Survey since 1964 collecting information from persons aged 15 to 64 years.

The Adult Learning Survey is a brief survey on participation in formal, non-formal and informal learning, using the international Classification of Learning Activities developed by the OECD. The survey will allow the measurement of participation in continuing education and training. The survey was enumerated in 2006–07 as part of the ABS's Multi-Purpose Household Survey collecting information from persons aged 25 to 64 years.

The SET aims to provide a comprehensive picture of education participation, qualifications and work-related training experiences of people aged 15 and over, with a focus on obtaining a history of education, training and work experiences over the 12 to 18 month period prior to the survey.

The Census of Population and Housing, which is conducted every five years, provides information on education participation, the level and field of people's highest educational qualification and a range of data on other topics. However, due to the self enumerated nature of the Census, there are limitations due to the accuracy of recall, high levels of non-response for some education items, as well as definition differences between the Census and more detailed education and training surveys.

The ALLS background questionnaire collected a variety of general information, some of which are comparable with information collected in other ABS surveys such as

- the General Social Survey;
- the National Health Survey;
- the Survey of Disability, Ageing and Carers; and
- the Household Use of Information Technology.

ADAPTING CONTENT FOR THE AUSTRALIAN POPULATION

In consultation with DEST and DEWR, and a number of experts in adult literacy, the ABS adapted the literacy assessment tasks to be used in the ALLS to the Australian context using adaptation and translation guidelines prescribed by the international co-ordinators of the survey. These guidelines detail what can and cannot be changed in the assessment tasks. Changes are intentionally restrictive so as not to alter the underlying definition or concept being assessed. For example, terms such as 'candy' or 'bleachers', that are essentially North American, were changed to 'lollies' and 'bench seating' to suit Australian respondents. All changes were approved by Statistics Canada to maintain comparability of the assessments between countries.

SCOPE AND COVERAGE

Only people who were usual residents of private dwellings in Australia were covered by the survey. Private dwellings are houses, flats, home units and any other structures used as private places of residence at the time of the survey. People usually resident in non-private dwellings such as hotels, motels, hostels, hospitals and short-stay caravan parks were not included in the survey. Usual residents are those who usually live in a particular dwelling and regard it as their own or main home. Visitors to private dwellings are not included in the interview for that dwelling. However, if they are a usual resident of another dwelling that is in the scope of the survey they have a chance of being selected in the survey or, if not selected, they will be represented by similar persons who are selected in the survey.

The ALLS was conducted in both urban and rural areas in all states and territories, except for very remote parts of Australia. Queensland, South Australia, Western Australia and the Northern Territory have very remote areas. With the exception of the Northern Territory, the population living in very remote areas represents only a small proportion of the total population (approximately 2%). For this, and other practical reasons, no adjustment was made to state population benchmarks (population benchmarks are discussed below) when deriving survey results. This exclusion is unlikely to impact on national estimates, and will only have a minor impact on any aggregate estimates that are produced for individual states and territories, except the Northern Territory where the excluded population accounts for over 20% of persons.

Persons aged 15 to 74 years were included in the survey. The estimated Australian resident population at December 2006, after the exclusion of people living in non-private dwellings and very remote areas of Australia, was 20,182,511 of which 15,105,435 were aged 15 to 74 years.

The following non-residents were excluded from resident population estimates used to benchmark the survey results, and were not interviewed:

- diplomatic personnel of overseas governments;
- members of non-Australian defence forces (and their dependants) stationed in Australia; and
- persons whose usual place of residence was outside Australia.

SAMPLE DESIGN AND SELECTION

The ALLS was designed to provide reliable estimates at the national level and for each state and territory.

Dwellings included in the survey in each state and territory were selected at random using a multi-stage area sample. This sample included only private dwellings from the geographic areas covered by the survey. The initial sample for the survey consisted of 14,311 private dwellings. This number was reduced to 11,139 dwellings due to the loss of households which had no residents in scope for the survey and where dwellings proved to be vacant, under construction or derelict. Of the eligible dwellings, 80.7% responded adequately which yielded a total sample from the survey of 8,988 dwellings/persons.

Some survey respondents provided most of the required information, but were unable or unwilling to provide a response to certain questions. The records for these persons were retained in the sample and the missing values were recorded as 'don't know' or not 'stated'. No attempt was made to deduce or impute for these missing values.

DATA COLLECTION

ABS interviewers conducted personal interviews at selected dwellings during the period of July 2006 to January 2007 with a break of eight weeks to allow for the enumeration of the 2006 Census of Population and Housing. Much of the detail obtained from the ALLS was provided by one person aged 15 to 74 years, randomly selected from each participating household. This person was randomly selected after basic information had been obtained about all household members.

Interviews

Selected households were initially sent a Primary Approach Letter (PAL) by mail to inform the household of their selection in the survey and to advise that an interviewer would call to arrange a suitable time to conduct the interview. A brochure, providing some background to the survey, information concerning the interview process, and a guarantee of confidentiality was included with the letter. For a small number of households where the ABS did not have an adequate postal address, this was not possible.

On first face-to-face contact with the household by an interviewer, general characteristics of the household were obtained from a responsible adult member of the household (any responsible adult — ARA). This information included basic demographic characteristics of all usual residents of the dwelling (e.g. age and sex) and the relationships between household members (e.g. spouse, son, daughter, not related).

From the information provided by the ARA regarding household composition, the survey instrument identified those persons in scope of the survey and randomly selected one person aged 15 to 74 years to be included in the survey. A personal interview was conducted with the randomly selected person.

In some cases where a personal interview with the selected person was not possible, another person responsible for them (known as a proxy), was interviewed on their behalf, provided the interviewer was assured that this was acceptable to the selected person. This was only permitted in extreme cases, for one of the following reasons:

- Mental or physical state of health does not allow response for the duration of the survey period;
- Children aged 15 to 17 where parent or guardian consent is not obtained; and
- Persons incapable of answering because of language difficulties.

In these cases, only the background questionnaire was administered, and the assessment components of the interview were not completed.

In order to obtain a personal interview with appropriate respondents, interviewers made appointments to call-back as necessary to the household. In some cases appointments for call-backs were made by telephone, however, all interviews were conducted face-to-face. Interviews may have been conducted in private or in the presence of other household members according to the wishes of the respondent.

Interviews continued

In cases where a respondent initially refused to participate in the survey, a follow-up letter was sent and a second visit was made to the respondent, usually by a supervisor, to explain the aims and importance of the survey and to answer any particular concerns the respondent may have had about the interview. Persons excluded from the survey through non-contact or refusal were not replaced in the sample. On average, the interview, including the assessment component, took 100 minutes per fully responding household.

Interviewer

Interviewers for the ALLS were primarily recruited from a pool of trained ABS interviewers having previous experience with ABS household surveys. All 299 interviewers selected to work on this survey underwent two days of classroom training aimed at emphasising the survey concepts, definitions and procedures in order to ensure that a standard approach was employed by all interviewers concerned.

Each interviewer was supervised in the field in the early stages of the survey, and periodically thereafter to ensure consistent standards of interviewing procedures were maintained. In addition, regular communication between field staff and survey managers was maintained throughout the survey via database systems set up for the survey.

Interviewers were allocated a number of dwellings (a workload) at which to conduct interviews. The size of the workload was dependent upon the geographical area and whether or not the interviewer was required to temporarily live away from home in order to collect the data. Interviewers living close to their workload area in urban areas usually had larger workloads.

Questionnaire

The questionnaire was designed to be administered using standard ABS procedures for conducting population interview surveys, having regard to the particular aims of the survey and of the individual topics within it, and to the methodological issues associated with those topics. Other factors considered in designing the questionnaire included the length of individual questions, the use of easily understood words and concepts, the number of subjects and overall length of the questionnaire, and sensitivity of topics. Where appropriate, standard questions from previous ABS surveys were included.

The Background Questionnaire and the scoring of CTB components of the interviews were conducted using a Computer Assisted Interviewing (CAI) questionnaire. The CTB and MTB were separate paper forms completed by the respondent without assistance from the interviewer or anyone else. There was no time limit for the survey.

CAI involves the use of a notebook computer to record, store, manipulate and transmit the data collected during interviews. This type of instrument offers important advantages over paper questionnaires. These include:

- the ability to check the responses entered against previous responses, to reduce data entry errors by interviewers, and to enable inconsistent responses to be identified and clarified with respondents at the time of the interview. The audit trail recorded in the instrument also provides valuable information about the operation of particular questions, and associated data quality issues.
- the ability to use complex sequencing to define specific populations for questions, and ensure word substitutes used in the questions are appropriate to each respondent's characteristics and prior responses.

Questionnaire continued

- the ability to capture data electronically at the point of interview, removing the added cost, logistical, timing and quality issues around the transport, storage and security of paper forms, and the capture of information from paper forms into a computerised format.
- the ability to deliver data in an electronic semi-processed form compatible with ABS data processing facilities (semi-processed in terms of data validation and some derivations which occur within the instrument itself). While both the input and output data still need to be separately specified to the processing system, input of the data in this form assists in the specification task and reduces the amount and complexity of some later processing tasks.
- the provision for interviewers to record comments to help explain or clarify certain responses, or provide supplementary information to assist in office coding.

The questionnaire employed a number of different approaches to recording information at the interview:

- questions where responses were classified by interviewers to one or more predetermined response categories. This approach was used for recording answers to more straightforward questions, where logically a limited range of responses was expected, or where the focus of interest was on a particular type or group of response (which were listed in the questionnaire, with the remainder being grouped together under 'other').
- questions asked in the form of a running prompt, i.e. predetermined response categories read out to the respondent one at a time until the respondent indicated agreement to one or more of the categories (as appropriate to the topic) or until all the predetermined categories were exhausted.
- questions asked in association with prompt cards, i.e. where printed lists of possible answers were handed to the respondent who was asked to select the most relevant response(s). By listing a set of possible responses (either in the form of a prompt card or a running prompt question) the prompt served to clarify the question or to present various alternatives, to refresh the respondent's memory and at the same time assist the respondent select an appropriate response.
- To ensure consistency of approach, interviewers were instructed to ask the interview questions as shown in the questionnaire. In certain areas of the questionnaire, interviewers were asked to use indirect and neutral prompts, at their discretion, where the response given was, for example, inappropriate to the question asked or lacked sufficient detail necessary for classification and coding.

MEASURES TO MAXIMISE RESPONSE

Ideally, interviews would be conducted with all people selected in the sample. However, in practice, some level of non-response is inevitable. Non-response is classified as being where people refuse to cooperate, cannot be contacted or are contacted but cannot be interviewed. It is important that response be maximised in order to reduce sampling variability and minimise bias. Sampling variability is increased when the sample size decreases. Bias can arise if the people who fail to respond to the survey have different characteristics from those who did respond.

The ABS sought the willing cooperation of selected households. Measures taken to encourage respondent cooperation and maximise response included:

MEASURES TO MAXIMISE RESPONSE *continued*

- information provided to selected households in the ALLS, initially by letter and a brochure, explaining that their dwelling had been selected for the survey, the purposes of the survey, its official nature and the confidentiality of the information collected. The letters gave advance notice that an ABS interviewer would call, and provided an ABS contact number for more information if required.
- stressing the importance of participation in the survey by selected households, by explaining that each household selected represented a number of others similar in size, composition, location, occupation, lifestyle and health. Further explanation that the cooperation of those selected was important to ensure all households/persons were properly represented in the survey and properly reflected in survey results.
- stressing the importance of the survey itself, which measures the literacy of Australians and therefore helps plan and provide support to those groups at risk.
- stressing the confidentiality of all information collected. The confidentiality of data is guaranteed by the Census and Statistics Act 1905. Under provisions of this Act the ABS is prevented from releasing any identifiable information about individuals or households to any person, organisation or government authority.

Through call-backs and follow-up at selected dwellings, every effort was made to contact the occupants of each selected dwelling and to conduct the survey in those dwellings. Interviewers made several call-backs before a dwelling was classified as 'non-contact'. Call-backs occurred at different times during the day to increase the chance of contact. If any person who was selected to be included in the survey was absent from the dwelling when the interviewer called, arrangements were made to return and interview at a later date. Interviewers made return visits as necessary in order to complete the questionnaire for the selected person in scope of the survey. In some cases, the selected adult within a dwelling could not be contacted or interviewed, and these were classified as non-contacts.

Respondents who refused to participate were usually followed-up by letter, as well as a subsequent visit by a supervisor. Completed questionnaires were obtained where possible. There were instances in which respondents were willing to answer some, but not all, of the questions asked, or did not know an answer to a particular question. The survey instrument was programmed to accept 'don't know' responses as well as refusals on sensitive topics, such as income.

RESPONSE RATES AND SAMPLE ACHIEVED

The initial sample for the survey consisted of 14,311 private dwellings. This number was reduced to 11,139 dwellings due to the loss of households which had no residents in scope for the survey and where dwellings proved to be vacant, under construction or derelict. Of the eligible dwellings, 80.7% responded fully (or adequately) which yielded a total sample from the survey of 8,988 dwellings. The following table shows the number of fully responding households achieved for each state and territory, and the corresponding response rate achieved in the ALLS.

ALLS 2006, Sample size and Response rate summary, By State and Territory

	Fully responding	*Response rate*(a)
	no.	%
State or Territory		
New South Wales	1 953	77.6
Victoria	1 724	77.6
Queensland	1 658	83.0
South Australia	1 084	82.7
Western Australia	1 271	81.3
Tasmania	579	89.2
Northern Territory	289	81.4
Australian Capital Territory	430	81.3
Australia	**8 988**	**80.7**

(a) Of eligible dwellings, excluding sample loss.

The number of adequately responding persons and response rates for selected countries are presented in the following table.

SELECTED COUNTRIES, Sample size and Response rate summary(a)

	Fully responding	*Response Rate*(b)
	no.	%
Bermuda	2 696	82
Canada	20 059	66
Italy	6 853	44
Norway	5 411	56
Switzerland	5 120	40
United States	3 420	66

(a) People aged 16-65 years.
(b) Of eligible dwellings, excluding sample loss.

COMPARABILITY WITH 1996 SAL

The sample sizes differed between the 2006 ALLS and 1996 ALLS. In 2006, the number of fully or adequately responding households achieved in the survey was 8,988 compared to approximately 9,302 for the 1996 cycle. The 2006 cycle had a larger initial sample size of 14,311 dwellings compared to 13,008 in 1996. These differences in the sample size for 2006 and 1996 should be considered when comparing results.

For published results from the 1996 ALLS, refer to *Aspects of Literacy: Assessed Skill Levels, Australia, 1996* (cat. no. 4228.0) available on the ABS website <www.abs.gov.au>.

DATA PROCESSING

Data capture

Computer-based systems were used to process the data from the Background questionnaire and CTB components of the survey. Internal system edits were applied in the CAI instrument to ensure the completeness and consistency of the questionnaire and responses during the interview. The interviewer could not proceed from one section of the interview to the next until responses had been properly completed.

A number of range and consistency edits were programmed into the CAI collection instrument. Edit messages appeared on screen automatically if the information entered was either outside the permitted range for a particular question, or contradicted information already recorded. These edit queries were resolved by interviewers on the spot with respondents.

Workloads were electronically loaded on receipt in the ABS office in each state or territory. Checks were made to ensure interviewer workloads were fully accounted for and that questionnaires for each household and respondent were completed. Problems with the questionnaire identified by interviewers were resolved by office staff, where possible, using other information contained in the questionnaire, or by referring to the comments provided by interviewers.

Coding

Computer-assisted coding was performed on responses to questions on country of birth, language, family relationships, educational qualifications, occupation and industry of employment. Geography data was also coded. The following details the classifications used to code data.

- Coding of country of birth. The survey questionnaire listed the 10 most frequently reported countries. Interviewers were instructed to mark the appropriate box, or if the reported country was not among those listed, to record the name of the country for subsequent coding. All responses for country of birth were coded according to the *Standard Australian Classification of Countries* (SACC), 1998 (cat. no. 1269.0).
- Coding of language. The survey questionnaire listed 10 most frequently reported languages first spoken at home. Interviewers were instructed to mark the appropriate box, or if the reported language was not among those listed, to record the name of the language for subsequent coding. All responses for language spoken were coded to the *Australian Standard Classification of Languages* (ASCL) (cat. no. 1267.0).
- Coding of geographical data. Geography data (Capital city, Balance of state/territory; Remoteness areas) were classified according to the *Australian Standard Geographical Classification* (ASGC) (cat. no. 1216.0).
- Coding of education. Level of education and field of education were coded to the *Australian Standard Classification of Education* (ASCED) (cat. no. 1272.0). Coding was based on the level and field of education as reported by respondents and recorded by interviewers.
- Coding of occupation. Occupation data were dual classified according to the ASCO, *Australian Standard Classification of Occupations, Second Edition, 1997* (cat. no. 1220.0.30.001) and the newly released ANZSCO, Australian and New Zealand Standard Classification of Occupations, First Edition, 2006 (cat. no. 1220.0). In addition, occupation was coded to the International Standard Classification of Occupations (ISCO), 1988.

Coding continued

- Coding of industry. Industry data were dual classified according to the newly released 2006 *Australian and New Zealand Standard Industrial Classification* (ANZSIC) (cat. no. 1292.0) and the previous 1993 *Australian and New Zealand Standard Industrial Classification* (ANZSIC) (cat. no. 1292.0.15.001). In addition, industry was coded to the International Standard Industrial Classification of All Economic Activities (ISIC), 1989.

Scoring

Completed MTBs were returned to the office, where they were either scored or data captured, depending on which blocks were included in the booklet. Booklets that contained only blocks to measure prose literacy, document literacy, or numeracy needed to be scored, and blocks measuring problem-solving generally required data capture and a minimal amount of scoring. The scoring of the problem solving blocks was completed by Statistics Canada and ETS.

The scoring and data capture of the booklets was completed by specially trained scoring staff. The scoring staff participated in two days of classroom training covering the international rules and guidelines for scoring. This was followed by re-scoring 200 Canadian test booklets which were scored by Statistics Canada and feedback provided on any items scored inconsistently.

Participating countries were also required to re-score at least 20% of the booklets with a match rate of at least 97% necessary between score one and score two. Initially all Australian booklets were re-scored to ensure the scoring guidelines were applied consistently by all scorers and where this was not the case, feedback was provided to the scorer. As scorers became more proficient, the number of booklets re-scored was reduced. Overall, 35% of Australian booklets were re-scored with a match rate of at least 97% for all items.

In addition to the intra country re-scoring, as participating countries were nearing completion of scoring their booklets, they were also required to undertake inter country re-scoring. The main goal of inter country re-scoring was to verify that Australian scorers did not score differently to other participating countries. This involved Australian scorers re-scoring 397 Canadian booklets. These scores were then compared to the Canadian first scores and feedback provided where items differed by more than 10%. The outcome from the inter country re-scoring resulted in Australia only having to re-score five items.

Throughout the scoring process, participating countries had access to an electronic bulletin board where counties could post scoring questions and receive scoring decisions from the domain experts. This information could be seen by all countries and was used extensively to resolve scoring queries quickly and consistently.

Output processing

Information from the questionnaires and scored assessment items, other than names and addresses, was stored on a computer output file in the form of data items. In some cases, items were formed from answers to individual questions, while in other cases data items were derived from answers to several questions. During processing of the data, checks were performed on records to ensure that specific values lay within valid ranges and that relationships between items were within limits deemed acceptable for the purposes of this survey. These checks were also designed to detect errors which may have occurred during processing and to identify instances which, although not necessarily an error, were sufficiently unusual or close to agreed limits to warrant further examination.

Throughout processing, frequency counts and tables containing cross-classifications of selected data items were produced for checking purposes. The purpose of this analysis was to identify any problems in the input data which had not previously been identified, as well as errors in derivations or other inconsistencies between related items. In the final stages of processing, additional output editing and data confrontation was undertaken to ensure ALLS estimates conformed to known or expected patterns, and were broadly consistent with other ABS data sources, allowing for methodological and other factors which might impact comparability.

Data available from the survey are essentially 'as reported' by respondents. The procedures and checks outlined above were designed primarily to minimise errors occurring during processing. In some cases it was possible to correct errors or inconsistencies in the data which was originally recorded in the interview, through reference to other data in the record, in other cases this was not possible and some errors and inconsistencies remain on the data file.

WEIGHTING, BENCHMARKING AND ESTIMATION

Weighting

Weighting is the process of adjusting results from a sample survey to infer results for the total population. To do this, a 'weight' is allocated to each sample unit e.g. a person or a household. The weight is a value which indicates how many population units are represented by the sample unit.

The first step in calculating weights for each person or household in the 2006 ALLS was to assign an initial weight, which is equal to the inverse of the probability of being selected in the survey. For example, if the probability of a person being selected in the survey was 1 in 600, then the person would have an initial weight of 600 (that is, they represent 600 people).

Benchmarking

The initial weights were calibrated to align with independent estimates of the population of interest, referred to as 'benchmarks'. Weights calibrated against population benchmarks ensure that the survey estimates conform to the independently estimated distribution of the population, by State or Territory, age, sex and area of usual residence, rather than to the distribution within the sample itself. Calibration to population benchmarks helps to compensate for over- or under-enumeration of particular categories of persons which may occur due to either the random nature of sampling or non-response.

Benchmarking continued

The 2006 ALLS was benchmarked to the estimated resident population (ERP) aged 15 to 74 years living in private dwellings in each state and territory, excluding the ERP living in very remote areas of Australia, at December 2006. The ERP estimates for 2006 were based on results from the 2001 Census of Population and Housing. Therefore the ALLS estimates do not (and are not intended to) match estimates for the total Australian resident population obtained from other sources (which include persons and households living in non-private dwellings, such as hotels and boarding houses, and in very remote parts of Australia). Benchmark variables used in the 2006 ALLS, with corresponding level of detail, were:

- State or territory of usual residence — all states and territories;
- Age of person — in five year age groups;
- Sex of person — males and females; and
- Area of usual residence — capital city and balance of state.

DATA QUALITY

Non-sampling error

Non-sampling errors occur when survey processes work less effectively than intended. This type of error is not specific to sample surveys and can occur in a census. The main sources of non-sampling error are:

- errors related to survey scope and coverage;
- response errors such as incorrect interpretation or wording of questions;
- bias due to non-response or partial response, characteristics of non-responding persons and or partial responding persons may differ from responding persons; and
- processing errors such as mistakes in the recording or coding of the data obtained.

Each of these sources of error is discussed in the following paragraphs.

Errors related to Survey Scope

Some dwellings may have been inadvertently included or excluded because, for example, the distinctions between whether they were private or non-private dwellings may have been unclear. All efforts were made to overcome such situations by constant updating of lists both before and during the survey. In addition, some people may have been inadvertently included or excluded because of difficulties in applying the scope rules concerning who was identified as a usual resident, and concerning the treatment of some overseas visitors.

Response errors

In this survey, response errors may have arisen from four main sources:

- deficiencies in questionnaire design and methodology;
- deficiencies in interviewing technique;
- inaccurate reporting by the respondent; and
- factors affecting respondent performance on the main task booklet questions.

Response errors may arise through ambiguous or misleading questions, inadequate or inconsistent definitions of terminology used, or by poor overall survey design (e.g. context effects where responses to a question are directly influenced by the preceding questions). In order to overcome problems of this kind, individual questions and the overall questionnaire were thoroughly tested before being finalised for use in the survey. In addition, consultation with DEST and DEWR, and a wide range of users of the survey data with interests in adult literacy, reviewed the international survey content. Some minor adaptations to survey questions and exercises were made to suit the Australian context.

A further source of response error is lack of uniformity in interviewing standards. Methods employed to achieve and maintain uniform interviewing practises included training and re-training initiatives, and regular supervision and checking of interviewers' work. These initiatives aimed to ensure that a high level of response accuracy was achieved. An advantage of the CAI technology used in conducting interviews for this survey is that it potentially reduced non-sampling error by enabling edits to be applied as the data was being collected. The interviewer was alerted immediately if information entered into the computer was either outside the permitted range for a question, or contradictory to information previously recorded during the interview. These edits allowed the interviewer to query respondents and resolve issues during the interview. CAI sequencing of questions was also automated such that respondents were asked only relevant questions and only in the appropriate sequence, eliminating interviewer sequencing errors.

Response errors continued

Response errors may have also occurred due to the large nature of the survey, resulting in respondent fatigue (i.e. loss of concentration). While efforts were made to minimise errors arising from mis-reporting or non-reporting by respondents, some instances would have inevitably occurred.

Recall error may also have led to response error. Information recorded in the background questionnaire is essentially 'as reported' by respondents and hence may differ from information available from other sources or from different methodologies. Responses may be affected by imperfect recall or individual interpretation of survey questions, especially in the assessment components which were self enumerated.

A number of potential sources of non-sampling error are unique to ALLS. Some of the respondents may have found the test portion of the study intimidating and this may lead to a negative effect on their performance. Unlike other surveys, the ALLS test items have "right" and "wrong" answers. Although there was no imposed time limit for answering questions, having an interviewer present and waiting may have imposed an unintentional time pressure and therefore the test responses might not fully reveal the literacy capabilities of respondents due to the testing environment. The skills measured by the survey may not reflect the full range of some respondents' abilities in a more natural setting.

Non-response bias

Non-response can introduce errors into the results, as non-respondents may have different characteristics and experiences from those people who responded. The extent of non-response varies from partial non-response (failure to answer just one or some questions) to total non-response.

The magnitude of the bias depends on the extent of the differences, the level of non-response and the extent to which non-response adjustments can be made during estimation through the use of benchmarks.

As it is not possible to quantify differences between respondents and non-respondents in any survey, every effort is made to reduce the level of non-response and for this survey, additional measures were taken (see p.15).

Non-response bias may be redressed to an extent by calibration to benchmark totals. The 2006 ALLS was calibrated to two sets of benchmarks: (i) estimated household composition totals and (ii) State, part of state, age group and sex totals.

Under or over-representation of persons and households in these benchmark groups were adjusted for, helping to compensate for any differential response patterns that may also be associated with these groups.

Errors in processing

Opportunities exist for errors to arise during the processing of data between the initial collection of the data and final compilation of statistics. These may be due to a failure of computer editing programs to detect errors in the data, or during the manipulation of raw data to produce the final survey data files; for example, in the course of deriving new data items from raw survey data or during the estimation procedures or weighting of the data file. Due to the nature of the ALLS, the ABS has implemented, in addition to its own quality assurance processes, a number of internationally required quality assurance procedures.

Errors in processing continued

Errors may occur when computer editing programs fail to detect errors, and when data is coded and transferred at various stages of computer processing. In order to minimise these errors, computer edits were devised to ensure that logical sequences were followed in the CAI instrument, that necessary items were present and that specific values lay between certain ranges. These edits were designed to detect reporting or recording errors, and incorrect relationships between data items or missing data items.

Tabulations were obtained from the data file at various stages during processing (such as, after computer editing and subsequent amendments, weighting of the file and after derivation of new data items) to identify unusual values which may have significantly affected estimates and illogical relationships not previously identified. Further checks were conducted to ensure consistency between related data items and in the relevant populations.

Errors in scoring

Another potential source of non-sampling error is on the scoring of the test items, particularly those that were scored on a scale (e.g. items that required respondents to write). A number of measures were implemented to minimise any error, including the thorough training given to scorers prior to commencement of scoring actual survey test answers. It is an international requirement that scoring of main task booklets is performed by trained scorers using international scoring guidelines to maintain consistency. Thirty five percent of the core task booklets and main task booklets were re-scored for quality control. Adjudication of the re-scoring was performed by the Scoring Supervisor, in consultation with Statistics Canada where necessary.

Literacy Score Imputation Variance

In contrast to most other ABS surveys, the 2006 ALLS estimates also include significant imputation variability, due to the use of multiple possible MTB questionnaires and the complex literacy scaling procedures. The effect of the plausible scoring methodology on the estimation can be reliably estimated and is included in the calculated SEs.

An accepted procedure for estimating the imputation variance using plausible values is to measure the variance of the plausible scores (with an appropriate scaling factor) as follows:

$$Var_{imp}\left(\hat{\theta}_{mean}\right) = \left(1 + \frac{1}{M}\right) \sum_{i=1}^{M} \frac{\left(\hat{\theta}_i - \hat{\theta}_{mean}\right)^2}{(M-1)}$$

where

$\hat{\theta}_{mean}$ = the mean estimate of the plausible scores

i = 1-5 respectively, for the plausible scores $\hat{\theta}_1$ to $\hat{\theta}_5$

M = the total number of plausible scores used (M = 5 for ALLS)

Sampling error

The estimates are based on information obtained from the occupants of samples of dwellings. Therefore, the estimates are subject to sampling variability and may differ from the figures that would have been produced if information had been collected for all dwellings. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied because only a sample of dwellings was included. There are about two chances in three that the sample estimate will differ by less than one SE from the figure that would have been obtained if all

Sampling error continued

dwellings had been included, and about 19 chances in 20 that the difference will be less than two SEs.

Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate. For estimates of population sizes, the size of the SE generally increases with the level of the estimate, so that the larger the estimate the larger the SE. However, the larger the sampling estimate the smaller the SE in percentage terms (RSE). Thus, larger sample estimates will be relatively more reliable than smaller estimates.

The magnitude of the sampling error associated with a sample estimate depends on the following factors:

- Sample design: there are many different methods which could have been used to obtain a sample from which to collect data. The final design attempted to make survey results as accurate as possible within cost and operational constraints.
- Sample size: the larger the sample on which the estimate is based, the smaller the associated sampling error.
- Population variability: the third factor which influences sampling error is the extent to which people differ on the particular characteristic being measured. This is referred to as the population variability for that characteristic. The smaller the population variability of a particular characteristic, the more likely it is that the population will be well represented by the sample, and therefore the smaller the sampling error. Conversely, the more variable the characteristic, the greater the sampling error.

RSE's for estimates from the 2006 ALLS are available in 'actual' form, i.e. the RSE for each estimate produced has been calculated using replicate weights. Delete-a-group jack knife replicate weighting is a process whereby a primary sampling unit (PSU) of persons in the sample are assigned a zero weight and then the remaining records are reweighted to the survey benchmark population. For the 2006 ALLS this process was repeated 60 times to produce 60 replicate weights. These replicate weights are used for calculating the variances of the estimate for each replicate group about the main weight estimate, by squaring the difference and summing these differences over all of the 60 replicate groups. The difference between the replicate estimate and the main weight estimate is then used in calculating the sampling error of the estimate.

The formula used for the sampling variance is:

$$var_{smpl}(\hat{\theta}_i) = \frac{59}{60} \sum_{g=1}^{60} (\hat{\theta}_{i,(g)} - \hat{\theta}_i)^2$$

where

$\hat{\theta}_i$ = the five plausible (and mean) literacy scores

g = the 60 replicates estimates of the five plausible (and mean) literacy scores

Total Variance, Total Standard Error and Total Relative Standard Error

Together, the sampling variance and imputation variance can be added to provide a suitable measure of the total variance. Then the total Standard Error (SE) can be obtained as the square root of the total variance. This SE indicates the extent to which an estimate might have varied by chance because only a sample of persons was included, and/or because of the significant imputation used in the literacy scaling procedures.

Another common measure used in the 2006 ALLS is the Total Relative Standard Error (RSE), which is obtained by expressing the Total SE as a percentage of the estimate to which it relates:

$$RSE\% = (SE/Estimate) \times 100$$

Very small estimates may be subject to such high relative standard errors as to seriously detract from their value for most reasonable purposes. Only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. However, estimates with relative standard errors of 25% or more are included in all 2006 ALLS output. Estimates with an RSE of 25% to 50% are preceded by the symbol * to indicate that the estimate should be used with caution. Estimates with an RSE greater than 50% are preceded by the symbol ** to indicate the estimate is considered too unreliable for most purposes.

Space does not allow for the separate indication of the SEs and/or RSEs of all the estimates in this publication. However, RSEs for all these estimates are available free-of-charge on the ABS website <www.abs.gov.au>, released in spreadsheet format as an attachment to *Adult literacy and Life Skills, Summary results, Australia* (cat. no 4228.0).

Comparison of estimates

Published estimates may also be used to calculate the difference between two survey estimates. Such an estimate is subject to sampling error. The sampling error of the difference between two estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two estimates (x-y) may be calculated by the following formula:

$$SE(x-y) = \sqrt{([SE(x)]^2 + [SE(y)]^2)}$$

While the above formula will be exact only for differences between separate and uncorrelated (unrelated) characteristics of sub-populations, it is expected that it will provide a reasonable approximation for all differences likely to be of interest in this publication.

Significance testing

For comparing estimates between surveys or between populations within a survey it is useful to determine whether apparent differences are 'real' differences between the corresponding population characteristics or simply the product of differences between the survey samples. One way to examine this is to determine whether the difference between the estimates is statistically significant. This is done by calculating the standard error of the difference between two estimates (x and y) and using that to calculate the test statistic using the formula below:

$$\frac{|x-y|}{SE(x-y)}$$

If the value of the statistic is greater than 1.96 then we may say there is good evidence of a statistically significant difference between the two populations with respect to that characteristic. Otherwise, it cannot be stated with confidence that there is a real difference between the populations.

The imprecision due to sampling variability, which is measured by the SE, should not be confused with inaccuracies that may occur because of imperfections in reporting by respondents and recording by interviewers, and errors made in coding and processing data. Inaccuracies of this kind are referred to as non-sampling error, and they occur in any enumeration, whether it be a full count or sample. Every effort is made to reduce non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers, and efficient operating procedures.

Calculating standard errors for proportions and percentages

Proportions and percentages formed from the ratio of two estimates are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. For proportions where the denominator is an estimate of the number of persons in a group and the numerator is the number of persons in a sub-group of the denominator group, the formula to approximate the RSE is given by:

$$RSE(x/y) = \sqrt{(RSE(x)]^2 - [RSE(y)]^2)}$$

Seasonal effects

The estimates from the 2006 ALLS are based on information collected from July 2006 through to January 2007, and due to seasonal effects they may not be fully representative of other time periods in the year. For example, the ALLS asked standard ABS questions on labour force status to determine whether a person was employed. Employment is subject to seasonal variation throughout the year. Therefore, the ALLS results for employment could have differed if the ALLS had been conducted over the whole year or in a different part of the year.

DATA AVAILABILITY

This section outlines the products and services currently available and those expected to be available over the coming months.

Results from the 2006 ALLS are available in the form of:

- an electronic summary publication available free of charge on the ABS website;
- versions of the summary publication compiled separately for each state;
- tables produced on request to meet specific information requirements from the survey; and
- a basic Confidential Unit Record File (CURF) available on CD ROM and an expanded CURF available via the Remote Access Data Laboratory (RADL).

SUMMARY PUBLICATION

The publication, *Adult Literacy and Life Skills, Australia 2006* (cat.no. 4228.0), presents summary results from the survey. The tables in the publication are predominantly at the national level, but some tables show international first wave country results. A number of tables also show comparisons with the 1996 Survey of Aspects of Literacy. The publication was released on 28 November 2007 and is available free of charge on the ABS website <www.abs.gov.au>. An electronic version of the tables released in the summary publication, in spreadsheet format, is also available on the ABS website <www.abs.gov.au>. The spreadsheet presents RSEs relating to estimates and/or proportions for each publication table.

STATE/TERRITORY TABLES

A set of tables in a spreadsheet format equivalent to those in this publication will be produced for each state and territory (subject to standard error constraints and excluding time series and international comparative tables). These tables will be available from the ABS website <www.abs.gov.au> (as Datacubes to cat. no. 4228.0) or from the ABS upon request.

ACCESS TO MICRODATA

For users who wish to undertake more detailed analysis of the survey data, microdata from the 2006 ALLS will be released in the form of two CURFs, the basic CURF and the expanded CURF. The expanded CURF will contain more detail than the basic CURF and will only be available via the RADL, which is a secure Internet-based data query service. The basic CURF will be available via CD-ROM or RADL. Technical Information describing the content and use of the basic CURF (Adult Literacy and Life Skills Survey, Australia: Basic Confidentialised Unit Record File, cat. no. 4228.0.30.001) and the expanded CURF (*Adult Literacy and Life Skills Survey, Australia: Expanded Confidentialised Unit Record File*, cat. no. 4228.0.30.002), will be available within the *Technical Manual: Adult Literacy and Life Skills Survey, Australia: Confidentialised Unit Record File* (cat.no. 4228.0.55.003).

SPECIAL DATA SERVICES

Special tabulations designed to suit individual user requirements can be provided, subject to confidentiality and sampling variability constraints. Tabulations can be produced from the survey incorporating specified data items and populations. These can be provided in printed or electronic form. Please refer to the contact details provided on the front of this publication.

RELATED PUBLICATIONS

Listed below is a selection of other ABS publications on related topics which may be of interest. Information about current ABS publications and products can be found in the *Catalogue of Publications* (cat. no. 1101.0), or on-line at <www.abs.gov.au>.

A Directory of Education and Training Statistics (cat. no. 1136.0)
Aspects of Literacy: Profiles and Perceptions, Australia (cat. no. 4226.0)
Census of Population and Housing 2006 (cat. no. 2015.0)
Education and Work, Australia (cat. no. 6227.0)
General Social Survey (cat. no. 4159.0)
Labour Force Australia (cat. no. 6202.0)
Education and Training Experience, Australia (cat. no. 6278.0)

APPENDIX 1 LEVELS OF DIFFICULTY

PROSE	
Level 1 (0-225)	Most of the tasks in this level require the respondent to read relatively short text to locate a single piece of information which is identical to or synonymous with the information given in the question or directive. If plausible but incorrect information is present in the text, it tends not to be located near the correct information.
Level 2 (226-275)	Some tasks in this level require respondents to locate a single piece of information in the text; however, several distractors or plausible but incorrect pieces of information may be present, or low-level inferences may be required. Other tasks require the respondent to integrate two or more pieces of information or to compare and contrast easily identifiable information based on a criterion provided in the question or directive.
Level 3 (276-325)	Tasks in this level tend to require respondents to make literal or synonymous matches between the text and information given in the task, or to make matches that require low-level inferences. Other tasks ask respondents to integrate information from dense or lengthy text that contains no organisational aids such as headings. Respondents may also be asked to generate a response based on information that can be easily identified in the text. Distracting information is present, but is not located near the correct information.
Level 4 (326-375)	These tasks require respondents to perform multiple-feature matches and to integrate or synthesize information from complex or lengthy passages. More complex inferences are needed to perform successfully. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent.
Level 5 (376-500)	Some tasks in this level require the respondent to search for information in dense text which contains a number of plausible distractors. Others ask respondents to make high-level inferences or use specialised background knowledge. Some tasks ask respondents to contrast complex information.
DOCUMENT	
Level 1 (0-225)	Tasks in this level tend to require the respondent either to locate a piece of information based on a literal match or to enter information from personal knowledge onto a document. Little, if any, distracting information is present.
Level 2 (226-275)	Tasks in this level are more varied than those in Level 1. Some require the respondents to match a single piece of information; however, several distractors may be present, or the match may require low-level inferences. Tasks in this level may also ask the respondent to cycle through information in a document or to integrate information from various parts of a document.
Level 3 (276-325)	Some tasks in this level require the respondent to integrate multiple pieces of information from one or more documents. Others ask respondents to cycle through rather complex tables or graphs which contain information that is irrelevant or inappropriate to the task.
Level 4 (326-375)	Tasks in this level, like those at the previous levels, ask respondents to perform multiple-feature matches, cycle through documents, and integrate information; however, they require a greater degree of inferencing. Many of these tasks require respondents to provide numerous responses but do not designate how many responses are needed. Conditional information is also present in the document tasks at this level and must be taken into account by the respondent.
Level 5 (376-500)	Tasks in this level require the respondent to search through complex displays that contain multiple distractors, to make high-level text-based inferences, and to use specialised knowledge.

NUMERACY	
Level 1 (0-225)	Tasks in this level require the respondent to show an understanding of basic numerical ideas by completing simple tasks in concrete, familiar contexts where the mathematical content is explicit with little text. Tasks consist of simple, one-step operations such as counting, sorting dates, performing simple arithmetic operations or understanding common and simple percents such as 50%.
Level 2 (226-275)	Tasks in this level are fairly simple and relate to identifying and understanding basic mathematical concepts embedded in a range of familiar contexts where the mathematical content is quite explicit and visual with few distractors. Tasks tend to include one-step or two-step processes and estimations involving whole numbers, benchmark percents and fractions, interpreting simple graphical or spatial representations, and performing simple measurements.
Level 3 (276-325)	Tasks in this level require the respondent to demonstrate understanding of mathematical information represented in a range of different forms, such as in numbers, symbols, maps, graphs, texts, and drawings. Skills required involve number and spatial sense, knowledge of mathematical patterns and relationships and the ability to interpret proportions, data and statistics embedded in relatively simple texts where there may be distractors. Tasks commonly involve undertaking a number of processes to solve problems.
Level 4 (326-375)	Tasks at this level require respondents to understand a broad range of mathematical information of a more abstract nature represented in diverse ways, including in texts of increasing complexity or in unfamiliar contexts. These tasks involve undertaking multiple steps to find solutions to problems and require more complex reasoning and interpretation skills, including comprehending and working with proportions and formulas or offering explanations for answers.
Level 5 (376-500)	Tasks in this level require respondents to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information, draw inferences, or generate mathematical justification for answers.
PROBLEM SOLVING	
Level 1 (0-250)	Tasks in this level typically require the respondent to make simple inferences, based on limited information stemming from a familiar context. Tasks in this level are rather concrete with a limited scope of reasoning. They require the respondent to make simple connections, without having to systematically check any constraints. The respondent has to draw direct consequences, based on the information given and on his/her previous knowledge about a familiar context.
Level 2 (251-300)	Tasks in this level often require the respondent to evaluate certain alternatives with regard to well-defined, transparent, explicitly stated criteria. The reasoning however may be done step by step, in a linear process, without loops or backtracking. Successful problem solving may require the combination of information from different sources, e.g. from the question section and the information section of the test booklet.
Level 3 (301-350)	Some tasks in this level require the respondent to order several objects according to given criteria. Other tasks require the respondent to determine a sequence of actions/events or to construct a solution by taking non-transparent or multiple interdependent constraints into account. The reasoning process goes back and forth in a non-linear manner, requiring a good deal of self-regulation. At this level respondents often have to cope with multi-dimensional or ill-defined goals.

Level 4 (351-500)

Items in this level require the respondent to judge the completeness, consistency and/or dependency among multiple criteria. In many cases, the respondent has to explain how the solution was reached and why it is correct. The respondent has to reason from a meta-perspective, taking into account an entire system of problem solving states and possible solutions. Often the criteria and the goals have to be inferred from the given information before actually starting the solution process.

TASKS EXAMPLES

The following examples are taken from *Learning a Living: First Results of the Adult Literacy and Life Skills Survey, 2005 OECD/Statistics Canada*. For more details on measuring literacy in ALLS, refer to the full publication.

Prose Literacy Tasks

One of the easiest tasks prose tasks (categorised as Level 1) directs the reader to look at a medicine label to determine the "maximum number of days you should take this medicine". This task was scored as easy because the reader was required to locate a single piece of information that was literally stated in the medicine label. The label contained only one reference to number of days and this information was located under the label dosage.

MEDCO ASPIRIN 500

INDICATIONS: Headaches, muscle pains, rheumatic pains, toothaches, earaches. RELIEVES COMMON COLD SYMPTOMS.

DOSAGE: ORAL. 1 or 2 tablets every 6 hours, preferably accompanied by food, for not longer than 7 days. Store in a cool, dry place.

CAUTION: Do not use for gastritis or peptic ulcer. Do not use if taking anticoagulant drugs. Do not use for serious liver illness or bronchial asthma. If taken in large doses and for an extended period, may cause harm to kidneys. Before using this medication for chicken pox or influenza in children, consult with a doctor about Reyes Syndrome, a rare but serious illness. During lactation and pregnancy, consult with a doctor before using this product, especially in the last trimester of pregnancy. If symptoms persist, or in case of an accidental overdose, consult a doctor. Keep out of reach of children.

INGREDIENTS: Each tablet contains
500 mg acetylsalicicylic acid.
Excipient c.b.p. 1 tablet.
Reg. No. 88246

0 67736 11079

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The most difficult task on the prose literacy scale (Level 5) required readers to look at an announcement from a personnel department and to "list two ways in which CIEM (an employee support initiative within a company) helps people who lose their jobs because of departmental reorganization". This task was scored as difficult because the question contained multiple phrases that the reader needed to keep in mind when reading the text. In addition, readers had to provide multiple responses and make low text-based inferences. This task is made somewhat more difficult because the announcement is organised around information that is different from what is being requested in the question. Thus while the correct information is listed under a single heading, this information is embedded under a list of headings describing CIEM's activities for employees looking for other work.

AUSCO

AUSCO Manufacturing Company
Personnel Department

Centre on Internal and External Mobility

What is CIEM?

CIEM stands for Centre on Internal and External Mobility, an initiative of the personnel department. A number of workers of this department work in CIEM, together with members from other departments and outside career consultants.

CIEM is available to help employees in their search for another job inside or outside the AUSCO Manufacturing Company.

What does CIEM do?

CIEM supports employees who are seriously considering other work through the following activities:

- ***Job Data Bank***
After an interview with the employee, information is entered into a data bank that tracks job seekers and job openings at AUSCO and at other manufacturing companies.
- ***Guidance***
The employee's potential is explored through career counselling discussions.
- ***Courses***
Courses are being organised (in collaboration with the department for information and training) that will deal with job search and career planning.
- ***Career Change Projects***
CIEM supports and coordinates projects to help employees prepare for new careers and new perspectives.
- ***Mediation***
CIEM acts as a mediator for employees who are threatened with dismissal resulting from reorganisation, and assists with finding new positions when necessary.

How much does CIEM cost?

Payment is determined in consultation with the department where you work. A number of services of CIEM are free. You may also be asked to pay, either in money or in time.

How does CIEM work?

CIEM assists employees who are seriously considering another job within or outside the company.

That process begins by submitting an application. A discussion with a personnel counsellor can also be useful. It is obvious that you should talk with the counsellor first about your wishes and the internal possibilities regarding your career. The counsellor is familiar with your abilities and with developments within your unit.

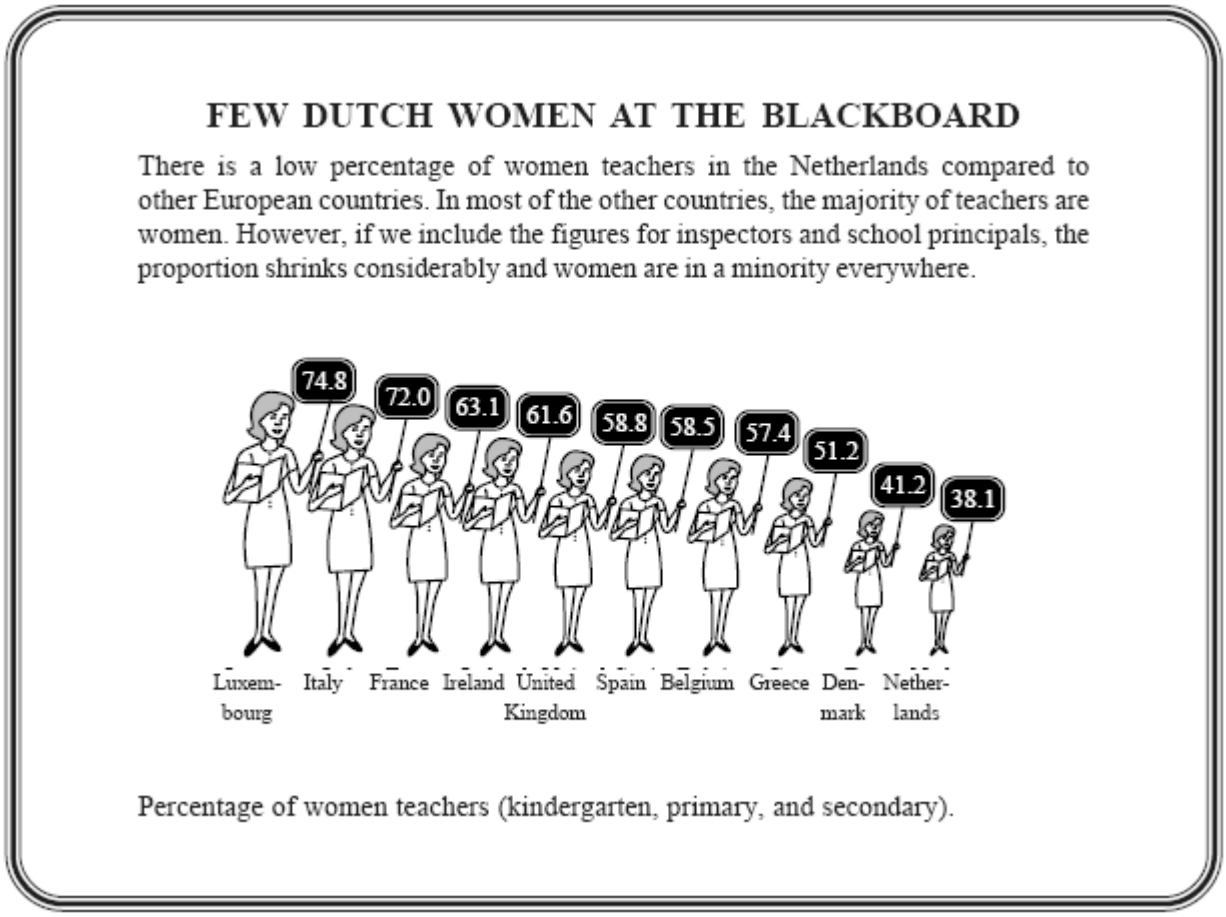
Contact with CIEM in any case is made via the personnel counsellor. He or she handles the application for you, after which you are invited to a discussion with a CIEM representative.

For more information

The personnel department can give you more information.

Document literacy tasks

A Level 1 document literacy task directs the reader to identify from a chart the percentage of teachers from Greece who are women. The chart shown below displays the percentage of teachers from various countries who are women. This task was judged to be easy because the reader was required to locate a single piece of information that was literally stated in the chart.



The most difficult task associated with this document, falling in Level 5, asks the reader to identify, from a complicated document taken from a page in a consumer magazine, the average advertised price for the basic clock radio receiving the highest overall score. This task was difficult because the reader had to match multiple features, and there was more than one price listed for the clock with the highest score, only one of which is the average advertised price.

RATINGS

Better ◀ ● ◓ ○ ◒ ● ▶ Worse

Clock radios

Listed by types; within types, listed in order of overall score. Differences in score of 4 points or less were not deemed significant.

1 Brand and model. If you can't find a model, call the company. Phone numbers are listed on page 736.

2 Price. The manufacturer's suggested or approximate retail price, followed by the average advertised price.

3 Dimensions. To the nearest centimetre.

4 Overall score. A composite, encompassing all our tests and judgments. A "perfect" radio would have earned 100 points.

5 Convenience. This composite judgment reflects such things as the legibility of the display, the ease of tuning the radio and setting the alarm, and the presence or absence of useful features.

6 Performance. An overall judgment reflecting performance in our tests of: sensitivity and selectivity; tuning ease; capture ratio, the ability to bring in the stronger of two stations on the same frequency; image rejection, the ability to ignore signals from just above the band, resistance to interference from signals bouncing off aircraft and such.

7 Sensitivity. How well each radio received a station with little interference.

8 Selectivity. How well each radio received clearly a weak station next to a strong one on the dial.

9 Tone quality. Based mainly on computer analysis of the speaker's output and on listening tests, using music from CDs. No model produced high-fidelity sound.

10 Reversible time-setting. This useful feature makes setting clock and alarm times easy. If you overshoot the desired setting, you simply back up.

11 Dual alarm. Lets you set two separate wake-up times.

1 Brand and model	2 Price	3 Dimensions HxWxD,cm	4 Overall Score	5 Convenience	6 Performance	7 Sensitivity	8 Selectivity	9 Tone quality	10 Reversible time setting	11 Dual alarm	Warranty,months	Advantages	Disadvantages	Comments
Full-featured clock radios														
RCA RP-3690	$50/$40	8x25x18	86	●	◓	◓	◓	●	✔	✔	12	A,B,D,H,J,L,O,T,U		*A*
Sony ICF-C303	50/45	5x20x15	84	●	◓	●	○	◒	✔	✔	12	C,E,F,I,N,T		*C*
Panasonic RC-X220	50/45	10x28x13	82	◓	◓	◓	◓	○	✔	✔	12	A,G,K,M,O,S,T,U	b,c	*A*
Realistic 272	50/30	5x28x15	79	◓	○	◓	◓	◒	✔	✔	3	A,G,H,K,O,T		*D*
Magnavox AJ3900	65/—	15x38x13	78	○	●	◓	●	◓	—	✔	3	D,G,K,M,O,R,T	b,g	*B*
Emerson AK2745	39/20	8x28x15	70	○	◒	◒	◒	○	✔	✔	3	G,O	g	*K*
Soundesign 3753	20/20	8x23x13	62	○	◒	●	○	○	✔	✔	3	J,Q	d,h	*J*
Basic clock radios														
Realistic 263	28/18	10x20x10	74	○	◓	◓	○	◒	—	—	3	A,D,H,O,P,U	h	—
Soundesign 3622	12/10	5x20x13	68	◒	◓	●	◒	◒	—	—	3	U	d	*L*
Panasonic RC-6064	18/15	5x20x13	67	◒	◓	●	○	○	—	—	12	—	b,c	—
General Electric 7-4612	13/10	5x20x13	66	◒	○	●	◒	○	—	—	12	A,D	a,g	—
Lloyds CR001	20/15	5x18x13	64	◒	○	●	○	◒	—	—	3	U	—	—
Sony ICF-C240	15/13	5x18x15	63	◒	○	○	○	○	—	—	12	—	f,g	—
Emerson AK2720	19/10	5x20x13	61	◒	○	◓	●	○	—	—	3	O,T	e	*K*
Gran Prix D507	15/10	5x18x10	54	◒	●	○	●	●	—	—	3	—	d	—
Clock radios with cassette player														
General Electric 7-4965	60/50	10x30x15	85	◓	◓	◓	◓	◓	✔	✔	12	A,D,G,H,K,O,S,T	—	*B,E*
Panasonic RC-X250	[1]	10x33x13	76	◓	◓	○	◓	◓	✔	✔	12	A,G,K,O,R,U	b,c	*A,H*
Sony ICF-CS650	75/65	15x28x15	74	○	◓	●	○	◒	✔	✔	12	G,R,T,U	c,f,i	*A,F,H*
Soundesign 3844MGY	40/30	13x30x13	62	○	●	●	●	◒	—	—	3	G,K,J,S,U		*F,G,I,M*

[1] *Discontinued. Replaced by* RC-X260, *$79 list and $60 average advertised sale price.*

Features in Common

All: • Permit snooze time of about 8 min. • Retain time settings during short power failures.
Except as noted, all have: • Battery backup for clock and alarm memory. • Red display digits 1 cm. high. • Sleep-time radio play for up to 60 min. before automatic shutoff. • Switch to reset alarm.

Keys to Advantages

A – Alarm works despite power failure.
B – Shows actual time plus up to 2 alarm times.
C – Twin alarms settable for 2 different stations.
D – Tone alarm has adjustable volume control.
E – Memory needs no battery.
F – Digital tuner with presettable stations.
G – Tuner can receive in stereo.
H – Battery-strength indicator.
I – Illuminated tuning dial.
J – Illuminated tuning pointer.
K – Earphone jack.
L – Nap timer.
M – Audio input for tape deck or CD player.
N – Display can show date and time.
O – Display has high/low brightness switch.
P – Display has larger digits than most.
Q – Night light—adjusts for room light.
R – Bass-boost tone control.
S – Treble-cut tone control.
T – Better than most in tuning ease.
U – Better than most in image rejection.

Key to Disadvantages

a – Possible to reset time by accident.
b – Controls for time-setting or dimmer inconveniently located on radio's bottom or rear.
c – Display dimmer than most in brightly lit room.
d – Radio volume must be turned completely down for alarm buzzer to sound.
e – Lacks alarm buzzer; radio is sole alarm.
f – Lacks indication alarm is set.
g – Lacks alarm-reset button.
h – Time-setting lacks fast reverse.
i – No slow forward, fast reverse for time setting.

Key to Comments

A – Display shows green digits.
B – Display shows blue digits.
C – Display uses LCD (liquid crystal display) digits.
D – Terminals for external antenna.
E – 3-position graphic equalizer.
F – Cassette player lacks Record function.
G – Cassette player lacks Rewind function.
H – Model permits wake-up to cassette play.
I – Cassette-deck flutter worse than most.
J – Warranty repairs cost $3 for handling.
K – Warranty repairs cost $3.50 for handling.
L – Warranty repairs cost $6 for handling.
M – Warranty repairs cost $10 for handling.

Numeracy Tasks

One of the easiest tasks on the numeracy scale required respondents to look at a short text depicting the results of an election involving three candidates and determine the total number of votes cast. This task was easy because respondents were asked to deal with a realistic type of situation where simple numerical information is displayed in a simple column format showing the name of each candidate and the number of votes that the candidate received. No other numerical information was present that could distract the respondent. Finding the total number of votes cast in the election requires a single addition operation that is made explicit in the question by the use of the keyword "total", and the computation involves relatively small whole numbers.

Nationwide Manufacturing Company Union Council

ELECTION RESULTS

Posting Date: June 22, 2000

The election of a new member of the Union Council for election group 3, at the Carver plant took place on June 21, 2005.

The results of the election were as follows:

Candidates	Number of votes
A. Greer	120 votes
H.A. Holliday	80 votes
G.F. Reynolds	29 votes

Consequently Mr. A. Greer was formally elected as member of the Union Council for Nationwide Manufacturing Company.

In accordance with article 16, paragraph 1 of the Union Council bylaws, any interested party may lodge a complaint with the council within one week after publication of these results.

For the Election Committee:

K. Moore,

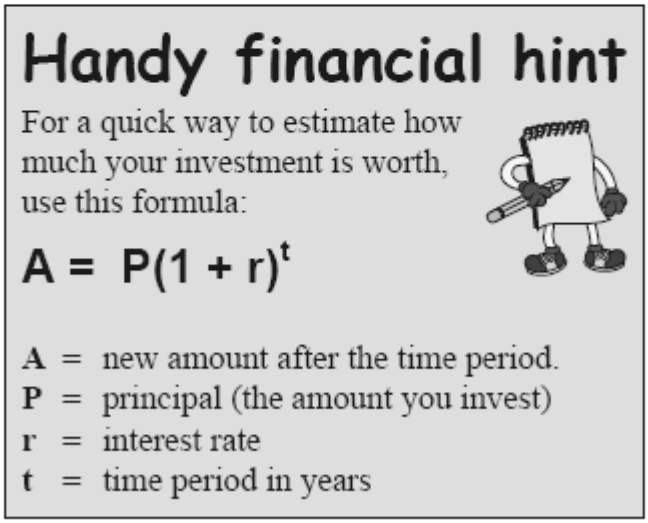
Information Bulletin No. 40

Removal date: July 6, 2000

Numeracy Tasks continued

The most difficult numeracy task in this assessment, rated Level 5, presented respondents with an advertisement claiming that it is possible for an investor to double an amount invested in seven years, based on a 10% fixed interest rate each year. Respondents were asked if it is possible to double $1000 invested at this rate after seven years and had to support their answer with their calculations. A range of responses was accepted as correct as long as a reasonable justification was provided, with relevant computations. Respondents were free to perform the calculation any way they wanted, but could also use a "financial hint" which accompanied the advertisement and presented a formula for estimating the worth of an investment after any number of years. Those who used the formula had to enter information stated in the text into variables in the formula (principal, interest rate and time period) and then perform the needed computations and compare the result to the expected amount if $1000 is doubled.

All respondents could use a basic calculator provided as part of the assessment. This task proved difficult because it involved percents and the computation, whether with or without the formula, required the integration of several steps and several types of operations. Performing the computations without the formula required understanding of compound interest procedures. This task allowed respondents to use a range of reasoning strategies, including informal or invented procedures. It required the use of formal mathematical information and deeper understanding of non-routine computational procedures, all of which may not be familiar or accessible to many people.



Problem solving tasks

The following example illustrates a concrete realisation of a project. For this purpose a project that is not included in the final ALLS instrument is introduced and one typical problem-solving task is shown. The project is about "Planning a trip and a family reunion". In the introductory part of the project, the respondent is given the following summary describing the scenario and overall problem:

"Imagine that you live in City A. Your relatives are scattered throughout the country and you would like to organise a family reunion. The reunion will last one day. You decide to meet in City B, which is centrally located and accessible to all. Since you and your relatives love hiking, you decide to plan a long hike in a state park close to City B. You have agreed to be responsible for most of the organisation."

The respondent is then given a list of steps they need to work through, in this example the following list:

- Set the date for the reunion
- Consider your relatives' suggestions for the hike
- Plan what needs to be done before booking your flight
- Answer your relative's questions about travelling by plane
- Book your flight
- Make sure your ticket is correct
- Plan the trip from City B to the airport

The first task of this project "Set the date for the reunion" is a good example of a typical problem-solving task and is shown here as it would appear in a test booklet.

Example task: Set the date for the reunion

The family reunion should take place sometime in July.

You asked all your relatives to tell you which dates would be suitable. After talking to them, you made a list of your relatives' appointments during the month of July. Your own appointment calendar is lying in front of you. You realize that some of your relatives will have to arrive a day early in order to attend the family reunion and will also only be able to return home on the day after the meeting.

Please look at the list of your relatives' appointments and your own appointment calendar.

List of your relatives' appointments in July 1999

Henry	Karen	Peter	Janet	Anne	Frank
Vacation in City E beginning on July 26; Appointment on July 11	Every day of the week is okay except Thursdays and on July 16	Business appoint-ments on July 2, July 13, and between July 27 and 29	Doesn't have any appoint-ments	Unable to attend reunion on July 5, July 20, or July 24	Has to be away sometime during the 1st full week in July on business, but will find out the exact dates shortly before

Henry, Karen, and Peter could arrive on the same day as the reunion whereas Janet, Anne, and Frank can only arrive on the afternoon before and return home on the day after the reunion.

MORE INFORMATION ON LITERACY IS CONTAINED IN THE FOLLOWING INTERNATIONAL PUBLICATIONS

- Learning a Living: First Results of the Adult Literacy and Life Skills Survey, 2005, OECD/Statistics Canada
- The Adult Literacy and Life Skills Survey, 2003 Public Use Microdata file, Statistics Canada, available at www.statcan.ca
- ALLS interactive data tool <http://litdata.ets.org/ialdata/search.asp>
- Measuring Adult Literacy and Life Skills: New Frameworks for Assessment, 2005, Statistics Canada
- The International Adult Literacy Survey (IALS): Understanding What Was Measured, 2001, ETS
- Literacy and Health in America: Policy Information Report, 2004, ETS
- Literacy, Economy and Society: Results of the First International Adult Literacy Survey, 1995, OECD/Statistics Canada
- Literacy Skills for the Knowledge Society: Further Results from the International Adult Literacy Survey, 1997, OECD/Statistics Canada
- Literacy in the Information Age: Final Report of the International Adult Literacy Survey, 2000, OECD/Statistics Canada
- Adult numeracy and its assessment in the ALL survey: A conceptual framework and pilot results, 2003, Statistics Canada
- An Overarching Framework for Understanding and Assessing Life Skills, 1999, Statistics Canada
- ALL Problem Solving Framework, 2003, Statistics Canada
- Health Literacy in Canada: Initial results from the International Adult Literacy and Skills Survey (IALSS), September 2007, Canadian Council of Learning
- New Zealand Literacy Portal <www.nzliteracyportal.org.nz>

GLOSSARY

Australian Standard Classification of Education (ASCED)

The ASCED is a national standard classification which includes all sectors of the Australian education system, that is, schools, vocational education and training, and higher education. From 2001, ASCED replaced a number of classifications used in administrative and statistical systems, including the Australian Bureau of Statistics Classification of Qualifications (ABSCQ). The ASCED comprises two classifications: Level of Education and Field of Education. See *Australian Standard Classification of Education* (ASCED), 2001 (cat. no. 1272.0)

Certificate not further defined

Survey responses were coded to Certificate not further defined (n.f.d.) when there was not enough information to code them to Certificate I, II, III or IV in the *Australian Standard Classification of Education (ASCED), 2001* (cat. no. 1272.0), Level of Education classification.

Document Literacy

The knowledge and skills required to locate and use information contained in various formats including job applications, payroll forms, transportation schedules, maps, tables and charts.

Educational Attainment

Highest level of schooling or non-school educational qualification completed, e.g. trade qualification, certificate or university degree. These qualifications may have been obtained in any country and need not have been accredited or recognised in Australia. In an economic sense, educational attainment provides a measure of the stock of skill and participation provides a flow measure.

Education Participation

Participation in education and learning is an indicator of access to skill learning opportunities. Lifelong learning is a key policy issue for OECD nations and has been connected to economic prosperity through the promotion of skill development within nations. Measures of participation in education and learning provide indicators of participation in lifelong learning and the opportunity to link such participation to directly assessed skill levels. In an economic sense, educational attainment provides a measure of the stock of skill and participation provides a flow measure.

Educational institution or organisation

An institution or organisation providing education or training such as Universities, TAFEs, Schools, organisations which provide Adult and Community Education, Business Colleges and Professional or Industry Associations.

Employed

Persons who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or
- were employees who had a job but were not at work; or
- were employers or own account workers who had a job, business or farm, but were not at work.

Employed full time

Employed persons who usually worked 35 hours or more a week (in all jobs) and those who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week.

Employed part time

Employed persons who usually worked less than 35 hours a week (in all jobs) and either did so during the reference week, or were not at work in the reference week.

Field of education

Field of Education is defined as the subject matter of an educational activity. Fields of education are related to each other through the similarity of subject matter, through the broad purpose for which the education is undertaken, and through the theoretical content which underpins the subject matter. The field of education is classified according to the *Australian Standard Classification of Education* (ASCED) (cat. no. 1272.0)

First language spoken

First Language Spoken is defined as the first language an individual masters during the language acquisition phase of intellectual development. This would generally be the language spoken in the home by the people who have raised the individual from infancy.

First wave countries

The Adult Literacy and Life Skills Survey (ALL) is an international literacy survey that completed by participating countries in successive waves. The first wave of countries to participate in ALL were in 2003 and included Bermuda, Canada, Italy, Mexico, Norway, Switzerland and the United States. Second Wave countries to take part in ALL were Australia, New Zealand, the Netherlands, Hungary and South Korea.

Group or organisation

An group or organisation is any body with a formal structure. It may be as large as a national charity or as small as a local book club. Purely ad hoc, informal and temporary gatherings of people do not constitute an organisation.

Health literacy

The knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy.

Informal learning

Learning that results from daily work-related, family or leisure activities (OECD, 2006). Various informal learning activities are collected in ALLS and these activities can be analysed separately or be grouped into active and passive modes of informal learning.

Passive modes of informal learning include:

- going on guided tours such as museums, art galleries, or other locations;
- learning by being sent around an organisation to learn different aspects of that organisation;
- visiting trade fairs, professional conferences or congresses; and
- attending short lectures, seminars, workshops or special talks that were not part of a course.

Active modes of informal learning include:

- learning by watching, getting help from or advice from others but not from course instructors;
- learning by yourself by trying things out, doing things for practice, trying different approaches to doing things;
- using video, television, tapes to learn but not as part of the course;
- using computers or the Internet to learn but not as part of a course; and
- reading manuals, reference books, journals or other written materials but not as part of a course.

Industry

An individual business entity is assigned to an industry based on its predominant activity. Industry is classified according to the *Australian and New Zealand Standard Industrial classification* (ANZSIC) (cat. no. 1292.0).

Labour force status

Refers to the situation of respondents in relation to the labour force at the time of the survey. Categories are:

- employed: had a job or business, or undertook work without pay in a family business in the week prior to the survey, including being absent from a job or business they had.
  - full-time: persons who usually work 35 hours or more per week; or
  - part-time: persons who usually work at least one hour, but less than 35 hours, per week.
- unemployed: not employed and actively looked for work in the four weeks prior to the survey and available to start work in the week prior to the survey.
- not in labour force: persons who were neither employed nor unemployed. They include people who are;
  - keeping house (unpaid);
  - retired, voluntarily inactive, or permanently unable to work; or
  - unpaid voluntary workers for charitable organisations.

Level (and Field) not determined

Level (and Field) not determined includes inadequately described responses and cases where no response was given.

Literacy related work activities

Respondents who had worked in the last 12 months were asked whether they performed any of the following tasks in their main job, and if so, how often.

Read or used:
- letters, memos or emails
- reports, articles, magazines or journals
- manuals or reference books
- directions or instructions

Main job

The job at which the respondent worked the most hours in the last 12 months. If the respondent had not worked in the last 12 months, but had worked in the last 5 years, the main job was the most recent job held within the last 5 years. In IALS, only those who worked in the last 12 months were included. By including those who have had work experience in the last 5 years but have not worked in the last 12 months, it will aim to capture recent retirees and to ascertain the potential skill match to occupation and industry of those who may be temporarily out of the labour market (such as women with young children).

Non-school qualifications

Non-school qualifications are awarded for educational attainments other than those of pre-primary, primary or secondary education. They include qualifications at the Post graduate degree level, Master degree level, Graduate diploma and Graduate certificate level, Bachelor degree level, Advanced diploma and Diploma level, and Certificates I, II, III and IV levels. Non-school qualifications may be attained concurrently with school qualifications.

Non-qualification course

A course that does not result in formal certification but is structured in content and delivery.

Not in the labour force

Persons who were not in the categories employed or unemployed, as defined.

Numeracy

The knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations.

Numeracy related work activities

Respondents who had worked in the last 12 months were asked whether they performed any of the following tasks in their main job, and if so, how often.
- Fills in bills, invoices, spreadsheets or budget tables;
- calculates prices, costs or budgets;
- counts or reads numbers;
- manages time or prepares timetables;
- gives or follows directions or uses maps or street directories; or
- uses statistical data.

Occupation

A collection of jobs sufficiently similar in their main tasks (in terms of skill level and specialisation) to be grouped together for classification purposes. Occupation has been dual classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and Australian Standard Classification of Occupations (ASCO).

Parental information

Parental information is gathered to provide an indication of the foundation for skill acquisition that has been provided in the home. Essentially, the information is used as an indicator of the socioeconomic status of respondents— an important antecedent variable to skill acquisition, economic and social success. There is research to suggest that an individual's educational attainment is influenced by the educational attainment of the parents.

Personal gross income

Regular and recurring cash receipts including monies received from wages and salaries, government pensions and allowances, and other regular receipts such as superannuation, workers' compensation, child support, scholarships, profit or loss from own unincorporated business or partnership and property income. Gross income is the

Personal gross income *continued*
sum of the income from all these sources before income tax or the Medicare levy are deducted.

Personal gross income — median
Median personal gross weekly income was calculated by dividing the distribution of gross weekly reported income into two equal groups, one receiving income above and the other income below that amount.

Personal gross Income — quintile
These are groupings of 20% of the total population of Australia when ranked in ascending order according to gross personal income.

The quintile boundaries for gross personal income for the 2006 ALLS population were:
- Lowest quintile: Up to $204 per week
- Second quintile: $204 to $402 per week
- Third quintile: $402 to $738 per week
- Fourth quintile: $738 to $1150 per week
- Highest quintile: $11508 or more per week

The quintile boundaries for gross personal income for the 1996 ALLS population were:
- Lowest quintile: Up to $115 per week
- Second quintile: $115 to $230 per week
- Third quintile: $230 to $460 per week
- Fourth quintile: $460 to $690 per week
- Highest quintile: $690 or more per week

Problem Solving
Problem solving is goal-directed thinking action in situations for which no routine solution procedure is available. The understanding of the problem situation and its step-by-step transformation, based on planning and reasoning, constitute the process of problem solving.

Proficiency in spoken English
The self-assessed level of ability to speak English in every day situations, asked of people whose first language spoken was a language other than English or who speak a language other than English at home.

Prose Literacy
The knowledge and skills needed to understand and use various kinds of information from text including editorials, news stories, brochures and instruction manuals.

Qualification
A course that results in formal certification, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, industry or community needs. Statements of attainment awarded for partial completion of a course of study at a particular level are excluded.

Self-assessed health status
The selected person's general assessment of their own health against a five point scale consisting of excellent, very good, good, fair and poor.

Self perception of skills
The selected person's self-perception of their own literacy skills, given against a four point scale from excellent through to poor (for example a respondent would be asked to self-rate their reading and writing skills).

Social capital
Social capital is broadly defined as 'Networks, together with shared norms, values and understandings which facilitate cooperation within and among groups'. (OECD, 2001) Social capital variables collected in ALLS include participation in group or organisation, unpaid volunteer work, life satisfaction, self assessed heath and emotional condition.

Social marital status
A person's relationship status in terms of whether she or he forms a couple relationship with another person.

State or territory
Classified according to the *Australian Standard Geographical Classification* (ASGC) (cat. no. 1216.0).

Studying full-time
Enrolment in study full-time as reported by the respondent.

Studying part-time
Enrolment in study part-time as reported by the respondent.

Unemployed	Persons aged 15-74 who were not employed (as defined), had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week, and were available for work in the reference week if they had found a job.
Unpaid volunteer	A person who provides unpaid help willingly undertaken in the form of time, service or skills, to an organisation or group.
Worked in the last 12 months	Had at least one employer or own business in the last 12 months.
Years of formal education	Refers to a person's number of completed academic years in a formal studies at the primary, secondary or further education level. Part time study is converted to its full-time equivalent.

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