

Stage 6 Preliminary & HSC



# Community and Family Studies

Second Edition

Louise Weiher • Bernadette Duggan • Sarah James • Jennie O'Donoghue

PEARSON

## Pearson Australia

(a division of Pearson Australia Group Pty Ltd)  
20 Thackray Road, Port Melbourne, Victoria 3207  
PO Box 460, Port Melbourne, Victoria 3207  
www.pearson.com.au

Copyright © Pearson Australia 2009  
(a division of Pearson Australia Group Pty Ltd)  
First published in 2009 by Pearson Australia  
2012 2011 2010  
10 9 8 7 6 5 4 3 2

### Reproduction and communication for educational purposes

The Australian *Copyright Act 1968* (the Act) allows a maximum of one chapter or 10% of the pages of this work, whichever is the greater, to be reproduced and/or communicated by any educational institution for its educational purposes provided that that educational institution (or the body that administers it) has given a remuneration notice to Copyright Agency Limited (CAL) under the Act. For details of the CAL licence for educational institutions contact Copyright Agency Limited ([www.copyright.com.au](http://www.copyright.com.au)).

### Reproduction and communication for other purposes

Except as permitted under the Act (for example any fair dealing for the purposes of study, research, criticism or review), no part of this book may be reproduced, stored in a retrieval system, communicated or transmitted in any form or by any means without prior written permission. All enquiries should be made to the publisher at the address above.

This book is not to be treated as a blackline master; that is, any photocopying beyond fair dealing requires prior written permission.



Publisher: Penelope Naidoo  
Editor: Brigid James  
Designers: Meaghan Barbuto and Paul Ryan  
Copyright & Pictures Editor: Helen Mammides  
Project Editor: Melinda Crimp  
Production Controller: Claire Henry  
Illustrator: Tracey Gibbs  
Printed in China (GCC/02)

National Library of Australia Cataloguing-in-Publication entry  
Weißen, Louise.  
Community and family studies: stage 6 preliminary & HSC/  
Louise Weißen ... [et al.]  
2nd ed.  
978 1 4425 1595 6 (pbk).  
Includes index.  
Life skills.  
Life skills—Problems, exercises, etc.  
646.7

Pearson Australia Group Pty Ltd ABN 40 004 245 943

### Disclaimer

The selection of Internet addresses (URLs) provided for this book was valid at the time of publication and was chosen as being appropriate for use as a secondary education research tool. However, due to the dynamic nature of the Internet, some addresses may have changed, may have ceased to exist since publication, or may inadvertently link to sites with content that could be considered offensive or inappropriate. While the authors and publisher regret any inconvenience this may cause readers, no responsibility for any such changes or unforeseeable errors can be accepted by either the authors or the publisher.

# Research skills

Research is 'to make known something previously unknown to human beings. It is to advance human knowledge, to make it more certain or better fitting ... The aim is ... discovery'. (Elias, 1986) This means that when you research, you have to find something out!

CAFS aims to develop your research skills. In each preliminary module there are integrated research activities that introduce different aspects of research and allow you to practise valuable skills. There are further research experiences in the HSC course, culminating in the development and presentation of an IRP.

In order to become a good researcher you must be active; you need to think for yourself. The research process is covered in detail in Chapter 5 but skills to concentrate on include summarising and reorganising ideas, referencing and bibliographies, and using the internet.

## Summarising ideas

Research involves finding quality information. It is important to be able to summarise the information you have found, reorganise ideas and make effective notes from what you read. This ensures that your assignment is your own work. It is perfectly acceptable to use other people's ideas but you must acknowledge them and avoid just copying what others have said. This is **plagiarism** and is unethical as well as carrying penalties both from your school and the Board of Studies. You should use other people's work to help form your own arguments.

A good way of effectively summarising is to put your pen down while you listen, watch or read so that you are not tempted to copy exactly. Then identify and sum up the main ideas from the source. Try to hear them in your own words.

**plagiarism:** presenting someone else's thoughts, writing or findings as your own

## Referencing and bibliographies

Acknowledging sources means recognising the use of someone else's research or ideas. This is done by referencing the source in your writing and then including the full details about it in a bibliography at the end of your work. Sources may include books, websites, DVDs, emails, magazines and other written, aural or visual media.

After listening to a speaker or audio recording, watching a DVD or internet video, or reading from a text or other reference source you need to take notes. It is important to note exactly where information comes from so that you can find it again. It is advisable to copy names and quotations exactly and use a different colour as this makes them easier to locate later.

Full details about referencing and setting out a bibliography are discussed in Chapter 5.

## Using the internet

The internet is a popular and widely used source for research. It can also be a valuable research tool, but because anyone can put information up, it is important to be critical in what you choose to use. Here are some guidelines to follow when researching information on the internet.

- Allow lots of time. Search results take time to follow up, especially if it is a busy time at school.
- Bookmark good sites straight away so that you can go back to them.
- Organise your bookmarks or favourites into subject folders regularly so that you can find the sites you want easily.
- Always check the credentials of writers. Locate the 'About' page and investigate which organisation, institution, company or individual has produced the website.
- Follow useful links and surf between sites, but always return to your original search and check other search results. Use the 'back' button to jump back a page or more.
- Look for names and email addresses of experts through the 'Contact us' page and send off personal enquiries to gather further information.
- Find details about titles and authors at Amazon or other book seller websites and look them up at your local or university library.

## Using key words

In order to respond to exams and assessment tasks you need to understand what is expected and exactly what the question is asking you to do. The Board of Studies' glossary of key words, as defined in Figure 1.7, provides direction through a common language across all senior courses.

You need to become familiar with these and can learn more about them in Chapter 10.

## A glossary of key words

|                                |  |
|--------------------------------|--|
| Account, Account for           | State reasons for, report on. Give an account of: narrate a series of events or transactions.  |
| Analyse                        | Identify components and the relationship between them; draw out and relate implications  |
| Apply                          | Use, utilise, employ in a particular occasion  |
| Appreciate                     | Make a judgement about the value of  |
| Assess                         | Make a judgement of value, quality, outcomes, results or size.   |
| Calculate                      | Ascertain/determine from given facts, figures or information   |
| Clarify                        | Make clear or plain  |
| Classify                       | Arrange or include in classes/categories   |
| Compare                        | Show how things are similar or different   |
| Construct                      | Make; build; put together items or arguments   |
| Contrast                       | Show how things are different or opposite  |
| Critically (analyse/ evaluate) | Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analysis/evaluation) |
| Deduce                         | Draw conclusions   |
| Define                         | State meaning and identify essential qualities   |
| Demonstrate                    | Show by example  |
| Describe                       | Provide characteristics and features   |
| Discuss                        | Identify issues and provide points for and/or against  |
| Distinguish                    | Recognise or note/indicate as being distinct or different from; to note differences between  |
| Evaluate                       | Make a judgement based on criteria; determine the value of   |
| Examine                        | Inquire into   |
| Explain                        | Relate cause and effect; make the relationships between things evident; provide why and/or how   |
| Extract                        | Choose relevant and/or appropriate details   |
| Extrapolate                    | Infer from what is known   |
| Identify                       | Recognise and name   |
| Interpret                      | Draw meaning from  |
| Investigate                    | Plan, inquire and draw conclusions about   |
| Justify                        | Support an argument or conclusion  |
| Outline                        | Sketch in general terms; indicate the main features of   |
| Predict                        | Suggest what may happen based on available information   |
| Propose                        | Put forward (for example a point of view, idea, argument, suggestion) for consideration or action  |
| Recall                         | Present remembered ideas, facts or experiences   |
| Recommend                      | Provide reasons in favour  |
| Recount                        | Retell a series of events  |
| Summarise                      | Express, concisely, the relevant details   |
| Synthesise                     | Put together various elements to make a whole  |

Figure 1.7 Board of Studies' glossary of key words



## CHAPTER 5

# Research methodology

## Overview

In order to conduct research, students need to learn, practise and refine research skills. This chapter allows students to build upon the research skills introduced throughout the preliminary course. The various research methodologies are re-examined, followed by an in-depth study of the stages involved in conducting and presenting research projects. Sources of data are outlined and research terminology is clarified. The importance of ethical research is considered and the Board of Studies *HSC: All My Own Work* is examined as part of this. By focusing on the processes of inquiry and research, students are able to pursue an area of interest in developing an Independent Research Project of their own.

Study of this chapter will enable students to:

- differentiate between quantitative and qualitative research
- identify primary and secondary sources of research data
- apply appropriate research methodologies
- account for the stages involved in conducting research
- distinguish the various ways of presenting data
- examine the sources of data available for research
- define terminology associated with research
- analyse the ethical issues concerning research
- apply the *HSC: All My Own Work* program to research in CAFS
- investigate the components of an Independent Research Project
- conduct and present an Independent Research Project.



# Research methodology

Research involves asking a question about something and then setting out to answer it. Good research describes a situation, explains the data collected and forms the basis for further action or research. Thus, research may be descriptive, explanatory or evaluative in its purpose.

## Methodologies

Methodologies are those strategies that are used by researchers to collect the data they need to answer their research question. They are the tools used to conduct research and will vary from one research setting to the next. Sometimes research involves gathering lots of information and at other times it can be very specific and focused on a small area.

## Quantitative and qualitative research

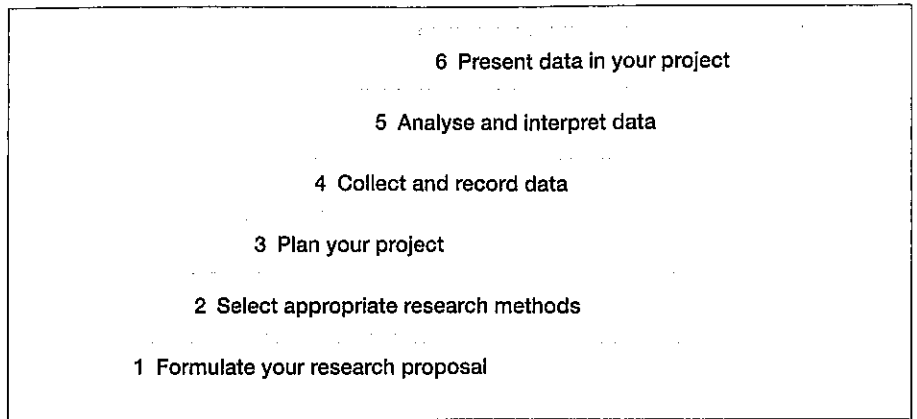
Research methodologies can be classified as either quantitative or qualitative. Often a combination of methodologies is used in a research project. For example, a researcher investigating group relationships may use an observation to find out about relationships between members but may also conduct a quantitative questionnaire to collect extra background information. It is also possible for some methods, such as an interview, to have both quantitative and qualitative aspects.

Quantitative research collects numerical data and is sometimes referred to as research with numbers. The research focuses on measuring, collecting and drawing relationships between facts through statistical analysis and experimentation. It often collects a small amount of specific data from a large number of people. The methodologies used include questionnaires, interviews and experiments. Quantitative methodologies tend to be more objective and reliable and they are less subject to bias than qualitative methodologies.

Qualitative research is concerned with collecting information in a social context and looks at interactions and relationships between individuals and groups. Researchers can obtain more detailed information about beliefs, feelings, values and attitudes. The focus is usually on a small number of people and the research produces a large amount of information about these people. The methodologies include observations, case studies, interviews and questionnaires. Qualitative methodologies are generally more subjective than quantitative methodologies and can be susceptible to bias from the researcher's own values and interpretations.

## Conducting research

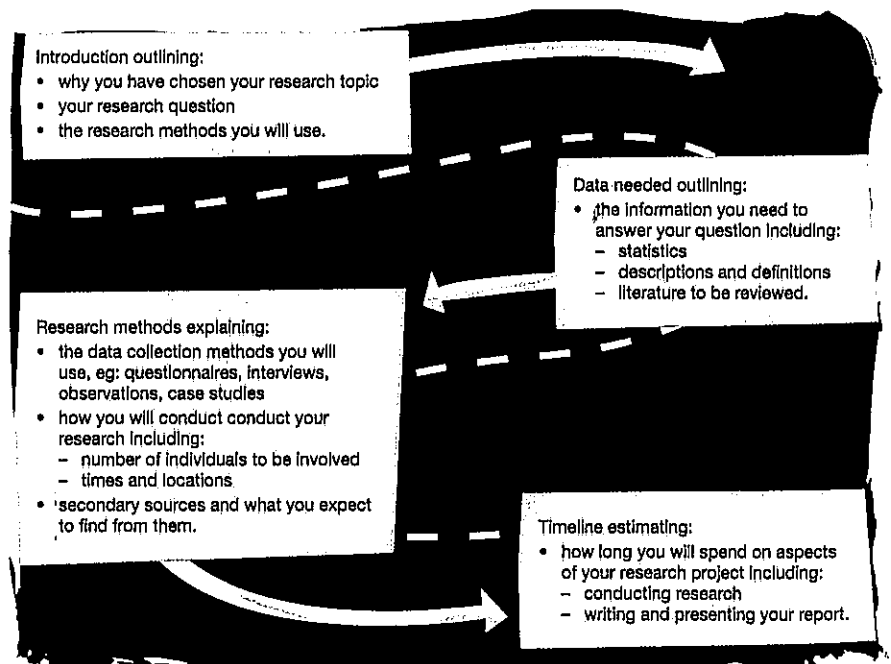
Conducting and presenting research is a process, that is a series of carefully planned steps that are followed through to a logical conclusion (see Figure 5.1).



**Figure 5.1** The research process

### Formulating a research proposal

A research proposal or plan is useful for looking at the entire research project. A clear proposal outlines what is to be done, how it will be done and when it will be done. You will submit a proposal or project plan as part of the Independent Research Project you must conduct for CAFS. The CAFS Stage 6 syllabus explains that the project plan 'provides an initial summary and outline of the complete research process'. You will submit the project plan or proposal to your teacher before conducting your project. Your teacher will provide you with the exact details that you are required to include in your plan, but Figure 5.2 provides a good guide of the components to include in a research proposal.



**Figure 5.2** Developing a research proposal



Once the research proposal is completed it should provide a clear direction although changes may need to be made. The question may be modified, some of the chosen methods may not work, an interviewee may cancel, and so on. Even the most experienced researcher will not produce a perfect proposal at the first attempt. Your proposal will be improved by reviewing it and asking advice about it.

A major part of your research proposal involves developing a suitable question. It can be difficult to decide on a research area or topic but some useful strategies include:

- listing things you like, dislike and just find interesting
- discussing ideas with your friends, teacher, parents and others
- thinking about the resources and people you can access
- reading newspapers, magazines, websites and other publications
- using graphic organisers to expand on your ideas.

It is important to do some background reading. By reviewing the existing material researchers gain a better understanding of the topic and are able to clarify a specific research topic. Looking at encyclopaedias, computer databases, relevant websites and books, and seeking out people such as librarians who can offer assistance, all help.

Once you have a good understanding of the topic area you can define the research topic. This involves developing a research question or hypothesis. A hypothesis is a statement that the researcher must prove or disprove, for example 'The community provides adequate and suitable leisure facilities for adults with a physical disability'. In developing a suitable question it is important that the aim of the research is clear and that valid conclusions can be made at the end.

The question chosen for the focus of your project should be related to the course content in one or more of the following areas:

- individuals
- groups
- families
- communities
- resource management.

## Research methodology

Depending on the purpose of the research, particular research methodologies are used to conduct it. Some methodologies are more appropriate than others for studying particular topics. As you learnt in the preliminary course, observations and case studies, although time-consuming, may provide greater insight into group relationships than a survey, including interviews and questionnaires. The literature review helps to direct research to be done. Each methodology has its own advantages and disadvantages.

### Survey

A survey is the process of conducting a study involving a number of individuals or subjects. A survey uses either interviews or questionnaires, conducted among a few or many people.

### Interview

Interviews are also discussed in Chapter 2. The researcher talks to various respondents in person or over the telephone, asking them questions about a particular topic. Interviews are usually conducted on a one-to-one basis but sometimes the researcher may have a focus group where a small group of people come together and are interviewed simultaneously. The respondents' answers are recorded in some way; either on a checklist, in brief notes taken by the researcher or by an audio or video-recording. The researcher and the respondent should be clear on the purpose of conducting the interview, and the researcher needs to be well prepared and plan clear, unambiguous questions. The researcher must be careful not to dominate the discussion or bias the answers by over-interpreting them.

A structured interview is quite formal, with set questions being asked in the same sequence to all respondents. This makes it easier to compare the respondents' answers fairly and reliably, and thus it is a quantitative method. The majority of the questions are closed, with a few open-ended questions being included as needed.

An unstructured interview is informal and is like a conversation. Respondents are often able to express themselves more openly through discussion of topic areas rather than answering specific questions. The questions can be adapted to meet the needs of the respondent or to suit the setting. The interviewer has to listen carefully to all answers in order to make changes as necessary.



Figure 9.8 An unstructured interview is flexible and non-threatening.

When planning and carrying out an interview researchers need to:

- decide on what information is needed and from whom
- plan and write the questions or identify a focus area
- decide on the sample size and how to conduct the interview
- prepare the means for recording for the interview
- **pilot** or test the interview
- conduct the interviews among the respondents
- analyse the results.

**pilot:** run a trial before undertaking a full-scale survey

### Questionnaire

Questionnaires are discussed in Chapter 4 and are reviewed here. Questionnaires can be used in many research situations. They involve gathering information from people using a planned series of questions. They can be distributed to large populations and thus provide a useful amount of quantitative data. Questionnaires are inexpensive and reasonably easy to use. The questions used may be closed and possible responses are limited. The respondent is offered several answers or options to choose from. Open-ended questions may also be used that allow the respondents to express opinions and make comments. Figure 5.4 provides examples of the questions used in questionnaires.

| Closed questions   |                          |                          |                          | Open questions   |
|--|--------------------------|--------------------------|--------------------------|--|
| On average, how many hours do you spend watching television? |                          |                          |                          | What modifications could this car dealership make in order to improve the service it provides for customers? |
| Hours  | Weekdays                 | Saturdays                | Sundays                  |  |
| Less than 2  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 2-5  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 5-8  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| More than 8  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| Which, if any, of these credit cards do you have?            |                          |                          |                          | Name your favourite features in this magazine and explain why you enjoy each of them.                        |
| Have no credit card  | -----                    | 1                        |                          |  |
| American Express   | -----                    | 2                        |                          |  |
| Bankcard   | -----                    | 3                        |                          |  |
| Diners Club  | -----                    | 4                        |                          |  |
| Mastercard   | -----                    | 5                        |                          |  |
| Visa   | -----                    | 6                        |                          |  |
| Other, please specify  | -----                    | 7                        |                          |  |
| Who are your current favourite Australian sports persons?    |                          |                          |                          |  |
| Male:  | _____                    |                          |                          |  |
| Female:  | _____                    |                          |                          |  |

Figure 5.4 Closed and open-ended questions

An oral questionnaire involves the researcher asking the respondents questions and recording the responses on a tally sheet. The interviewer speaks directly with the respondent through face-to-face contact or over the telephone.

A written questionnaire involves the respondents recording their own answers on the questionnaire sheet. The questionnaires are left with the respondents to fill in at their leisure and are picked up later, or the respondent posts them back in a return addressed envelope. A written questionnaire can also be completed electronically, via an email or by accessing a website.

Questionnaires require a lot of planning and preparation and respondents need to be made aware of the purpose of the questionnaire. When developing and conducting questionnaires researchers need to:

- decide on what information is needed and from whom
- design the questionnaire, with limited questions and a combination of closed and open-ended questions where possible
- decide on the sample size and how to conduct the questionnaire
- pilot or test the questionnaire
- conduct the survey in the appropriate group
- analyse the results.

#### **Case study**

Case studies are discussed fully in Chapter 3. They involve the detailed investigation of one issue, such as a person, event, community group or institution. They usually involve study of a real-life situation. A range of research techniques, including interview, observation and questionnaire may be used to collect the range of information needed about the single issue.

Because case studies allow a detailed examination and a deep understanding of a specific social issue, they are especially useful in finding out how and why. However, they usually require supporting research from other sources and generalisations are not often possible because of the limited information gathered. Case studies can be subjective and researchers may find it difficult not to become involved and thus influence the data collected.

When developing a case study-based project researchers need to:

- choose an appropriate topic to investigate and a time period to cover
- decide on the appropriate research technique(s) to use
- plan and prepare the materials for collecting and recording the data
- carry out the research technique(s) selected
- collate the results collected
- analyse the results.

#### **Observation**

Observations are discussed in detail in Chapter 3 and reviewed here. They involve watching and recording what is seen. Observations can reveal characteristics about groups or individuals that are not always possible with other methods.

A participant observation involves the researcher being part of the group and observing from within. The researcher tends to gain more knowledge and greater disclosure from members. However, these observations can be subjective and biased, and the researcher's presence and actions may influence the behaviour of group members if they detect what the researcher is there for. Observations are also very time-consuming.

A non-participant observation involves the researcher observing the group, without participating. The researcher is more objective and finds it easier to record what is seen. Group members' actions may still be affected because they know they are being observed, the researcher may inadvertently interact with the group and it is time-consuming, requiring a lot of patience.

Observation is a simple research method to conduct but it does require a lot of preparation, organisation and patience. When developing an observation-based project researchers need to:

- choose an appropriate site(s) or group(s) to observe and a time period to cover
- decide what exactly to observe, for example numbers, behaviours
- design a data-recording sheet
- conduct the observation(s)
- analyse the results.

### Literature review

Literature reviews are also discussed in Chapter 4. All research should begin by reviewing existing sources so that the researcher can learn from the work of others and focus on what needs to be researched. A literature review involves looking at books, articles, seminar papers, websites or other secondary sources that have already been written about an issue. It consists of a description, summary and critical evaluation of each work to show that an insightful study of what is already known about the topic has been made. It allows the researcher to develop a good working knowledge of the research in their chosen topic. A good literature review will raise questions and identify areas to be explored. It will give the reader some background information about the topic so that the research presented makes more sense.

A literature review provides the following information about a topic:

- research methods that are best suited to this type of research
- gaps existing in the research
- other research with similar findings
- researchers with opposing views on content or disagreeing with the majority.

Structuring a literature review

| Component    | Comments   |
|--------------|--|
| Introduction | <ul style="list-style-type: none"> <li>• Identify the topic.</li> <li>• Establish the reason for reviewing the literature.</li> <li>• Highlight overall trends in what has been published, gaps in research, conflicts between works and new areas to investigate.</li> </ul>  |
| Body         | <ul style="list-style-type: none"> <li>• Group research studies and other literature according to common factors, such as authors' conclusions, methodologies used and objective of the research.</li> <li>• Summarise individual studies with appropriate detail and explanation.</li> <li>• Clearly demonstrate how works are similar/different, exemplary/flawed and objective/subjective.</li> </ul> |
| Conclusion   | <ul style="list-style-type: none"> <li>• Summarise the major findings of significant studies.</li> <li>• Evaluate the current standing on the topic, emphasising gaps, inconsistencies and issues relevant for future research.</li> <li>• Identify the relationship between the literature review topic and the area of study.</li> </ul>   |
| Bibliography | <ul style="list-style-type: none"> <li>• Be complete.</li> <li>• Include up-to-date sources.</li> </ul>  |

**Figure 5.5** Follow the points in this table to structure a good literature review.

A good literature review is clear and coherent. As a researcher you should follow these steps.

- Assess the quality of the literature being reviewed very carefully. Consider the methodology and sampling used, any evidence of bias or subjectivity, how the data is reported and where it is published.
- Pose a series of questions to help form the review. For example, discuss the advantages and disadvantages of what was read, outline the differing points of view, explain the current situation.
- Show a clear relationship between your arguments and the data collected. Use linking words and sentences to indicate these connections. Make summary statements at the end of sections to draw conclusions.
- Link the ideas and group the authors who have similar findings together by using linking words like additionally, also and similarly. When the authors disagree use linking words, for example however and nonetheless, that show you have evaluated the literature and recognised the contrast of ideas.
- Back up opinions with facts from the literature. Examples, citations and quotations should be used where appropriate.
- Highlight opinions different from your own rather than ignore them. Present your data and acknowledge opposing viewpoints. Make your preferences clear rather than 'sitting on the fence'.
- Make connections between the sections of the review. Begin with an outline statement in the introduction that makes the order of the arguments clear and gives some reason for your choice in ordering the data as you have.
- Reference all the sources accessed as part of the literature review and include them in the bibliography.

## Planning

The research proposal defines the research question, identifies the methods to be used and outlines the time period for conducting the research. However, that is not the end of the planning and preparation. The nature of the research project and the methods selected generates further tasks. For example, questionnaires may need to be developed and printed, the use of equipment organised, telephone calls made to arrange interview times or appropriate libraries found to visit. Being well prepared at this stage makes research run smoothly and allows as much data as possible to be collected. Planning before acting means that there is a greater possibility of following the project's timeline.

It is a good idea to develop the timeline further at this stage. Using a table format (see Figure 5.6) or GANTT chart helps to clarify tasks to be done and set deadlines to meet along the way. The length of time you have to complete your project will be explained by your teacher. The timeframe needs to be manageable by both you and the teacher. Once you know how much time you have available, you can plot out and carefully plan what you will do and when.

Remember that circumstances may arise that you need to be prepared for. For example, people may have to reschedule interviews, computers may crash, or a news story may break about the chosen topic that has to be included. Timelines must be realistic and leave plenty of time for conducting questionnaires, completing a literature review and presenting the report.

| Week of project | Details of what is to be done  | Comments |
|-----------------|--|----------|
| 1               | Start diary.<br>Choose topic and formulate question.   |          |
| 2               | Develop and hand in research proposal.   |          |
| 3               | Investigate secondary sources, record and take notes from them.<br>Make copies if possible.                      |          |
| 4               | Develop questionnaire, check it with teacher.  |          |
| 5               | Try out the questionnaire and make any necessary changes.  |          |
| 6               | Distribute questionnaires (to be picked up again in one week).<br>Write literature review section of the report. |          |
| 7               | Collect questionnaires. Collate questionnaire results.   |          |
| 8               | Analyse questionnaire data.  |          |
| 9               | Write first draft of IRP.  |          |
| 10              | Have IRP proofread.  |          |
| 11              | Write second draft of IRP. (Check acknowledgments, bibliography and appendixes.)                                 |          |
| 12              | Hand in IRP and diary. Celebrate because it's finished!  |          |

Figure 5.6 Research project timeline

Keeping a research diary that records details of methods used, important dates and people or places that can help in the research is important. The aim of a project diary is to document research progress from the beginning to the end. A diary is a requirement for your project and the syllabus stipulates that it:

- is a record of an ongoing process
- records values, attitudes and feelings
- reflects honestly on problems encountered and their solutions
- records conversations, contacts, readings and sources of secondary data
- reflects the proposed timeline (CAFS Stage 6 syllabus, page 53).

The diary sets out what you do, how you do it and your feelings about it. It should include any changes in focus or direction and show both the work done at school and outside school hours. It should include dates, telephone calls, addresses and other details of the research. Figure 5.7 provides a sample of a diary entry.

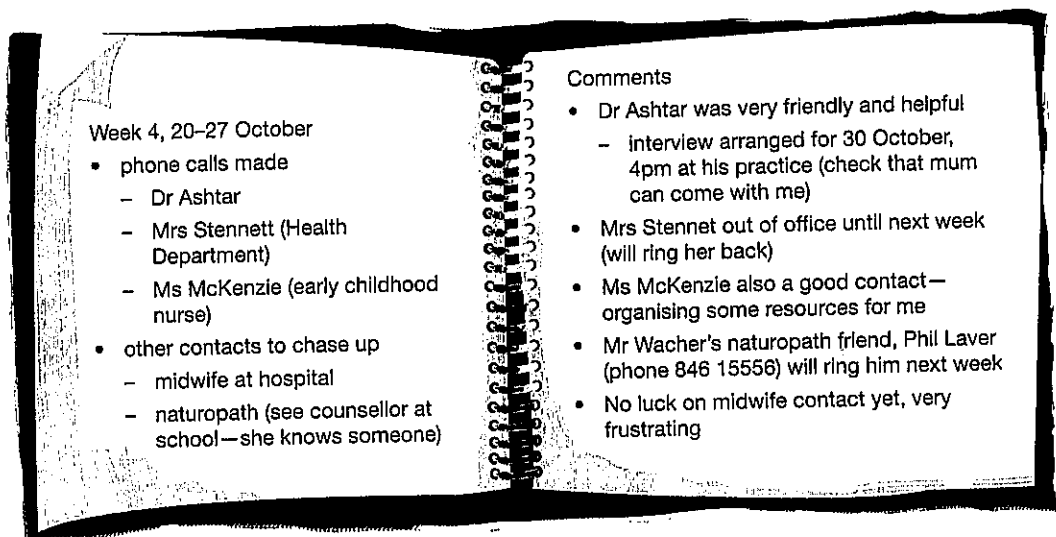


Figure 5.7 Sample of a project diary entry

Your teacher will explain the format and presentation required for student diaries. You will submit the diary to your teacher regularly so that the development of your project can be monitored. You may be able to keep your diary as a computer file, or may be expected to use a lined book or commercially printed diary. Whatever the case, your diary should be started as soon as you are set the project.

### Collecting and recording data

There are two stages in collecting and recording data. The first involves conducting primary research or main data collection, and the second stage is the collection of secondary data to support your own findings.



Primary research is very important and often the most time-consuming. It is carried out first hand by researchers and may involve undertaking interviews, carrying out an observation, distributing and collecting questionnaires or developing a case study. For example, for a research topic on leisure facilities for adults with a physical disability, you may interview participants in the local wheelchair basketball team about their experiences in the community.

Secondary research sources are those gathered by someone else. The information has already been processed in some way. Collecting relevant secondary data that already exists about a research topic helps to focus the researcher's findings. For the research topic referred to above, statistics on the number and types of leisure facilities in the community that cater for physical disabilities would be useful information. Government departments and disability support groups could be valuable secondary sources in this instance.

Most research uses both primary and secondary sources. Secondary sources are often used to support or add to the findings of primary research. Figure 5.8 classifies primary and secondary research methods.

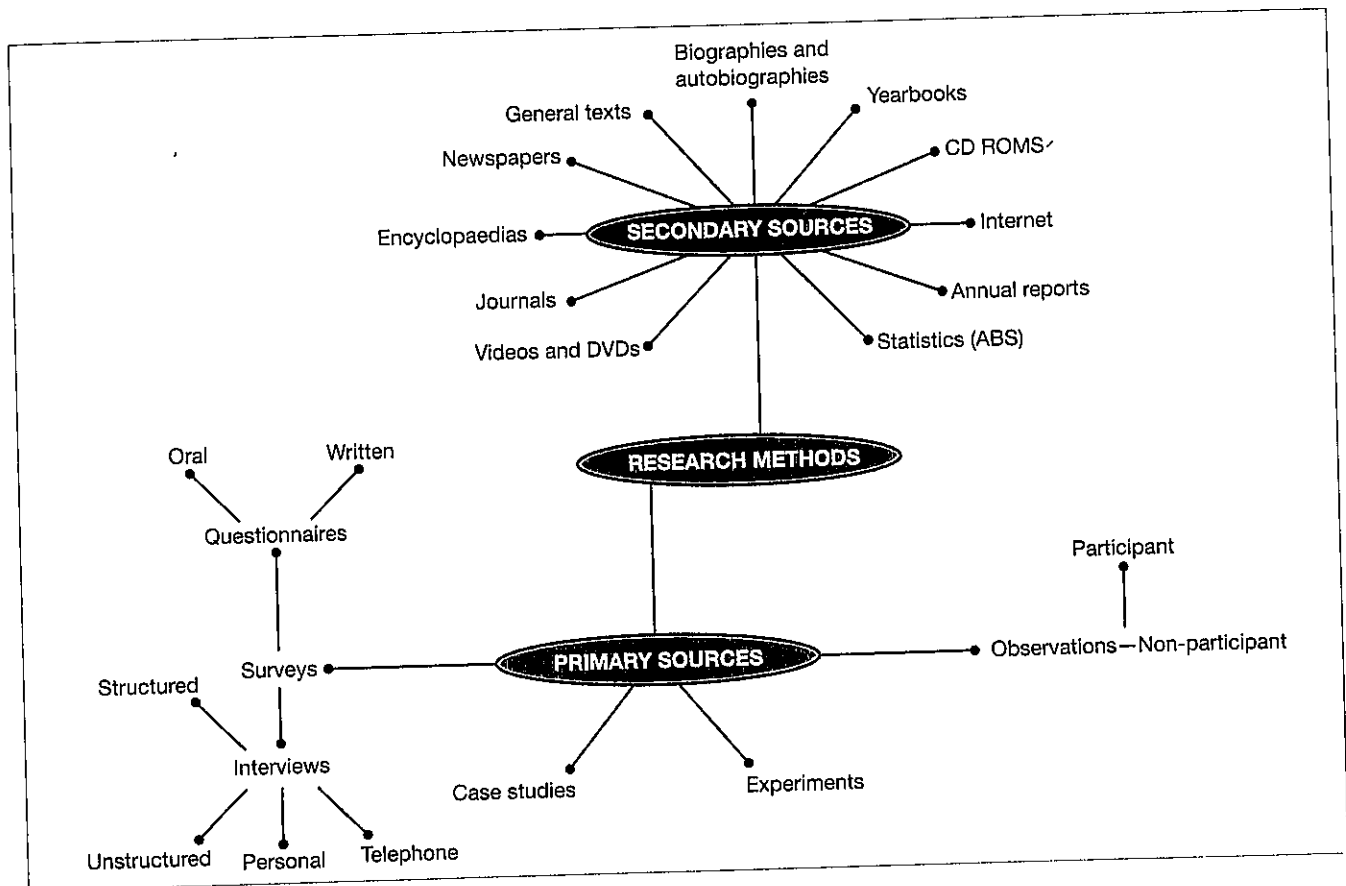


Figure 5.8 Primary and secondary research methods

Once information is researched it needs to be recorded and referenced. A card file system is a well-used method. Lined cards of about 120 millimetres  $\times$  80 millimetres can be purchased at newsagents, prepared (see Figure 5.9) and then filed in topic or alphabetical order.

|                   |         |
|-------------------|---------|
| Topic             |         |
| Publication title |         |
| Author(s)         |         |
| Publisher         | Country |
| Date              | Pages   |
|                   |         |
| Comments          |         |

Figure 5.9 Topic card file system

When taking notes it is a good idea to be selective and use point form that can be expanded later. If too much information is recorded, time may be wasted taking down irrelevant data and focus could be lost. Review effective note-taking in Chapter 1 for more ideas.

### Analysing and interpreting data

Analysis and interpretation of the data collected is a very significant part of research. It makes sense of the data and gives meaning to the research findings. You need to refer back to the research question to help organise your data and focus your analysis.

Analysing involves clarifying the data and highlighting important points, trends, common elements, unexpected outcomes and relationships between factors. When analysing quantitative data this will usually mean tabulating the data and establishing the **mean**, **median**, **mode** and **range** of research results. For example, you may add up all the 'yes' and 'no' responses on questionnaires you distributed. You may calculate that the mean for question 2 is 12.4 or identify the range of twenty people who marked 'yes' for question 9.

When analysing qualitative data you need to read through all the data first. The ideas can then be organised into categories such as similar experiences of respondents and suggestions made, and then these can be given headings. From these findings patterns and relationships can be identified and reported on.

Interpretation involves explaining the principles of the data and how they apply, the validity and reliability of the data, inconsistencies discovered, and the implications and limitations of the research. It allows you to put the information into perspective and compare the results to what you expected. This means you evaluate the extent to which the data supports or answers your research question.

**mean:** average score

**median:** middle value in a set of scores

**mode:** most frequently occurring score

**range:** difference between the highest and lowest scores

## Learning activities

- 1 As a class, discuss quantitative and qualitative research and complete the table below.

| Research     | Advantages | Disadvantages |
|--------------|------------|---------------|
| Quantitative |            |               |
| Qualitative  |            |               |

- 2 Use the information from this chapter and what you have learnt from the preliminary course to create A4 posters highlighting the advantages and disadvantages of each of the research methodologies.
- 3 Conduct a literature review on one of the topics below. Consider at least four works from a variety of sources and structure the review as shown in Figure 5.5.
  - Mobile phones cause brain tumours.
  - Changes to NSW licensing requirements means that young adults are now better drivers.
  - Children who attend childcare are better socialised than those who stay at home.

## Presenting data

Quantitative data is often presented in a graphic way, using charts, graphs or tables. These are particularly useful tools for summarising results in a clear and easy to read format. Qualitative data is more suited to being presented in text or prose format, with structured sentences, paragraphs and appropriate use of headings to guide the reader. This allows for greater description and discussion of results. Most research projects use a combination of both to present information.

### Graphs and tables

The most widely used graphic presentations are tables and graphs. When combined with relevant diagrams and explanatory text they are very useful in relating research findings. Both tables and graphs can be generated using computer spreadsheet programs. The data entered onto the spreadsheet can be made into a chart format and printed, depending on the options available in the program.

Tables list numerical data in labelled columns and are therefore useful in showing interrelationships or making comparisons between factors. Figure 5.10 is an example of a well-presented table. The major components of a table are:

- title or caption
- headings for columns and rows

- data values
- layout elements, including interior and exterior lines, shading and font variations
- source of the information and any necessary explanations at the bottom.

Labour force status of women and men aged 18-64 years (a)

|                  | Women     |           |           | Men       |           |           |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                  | 1982<br>% | 1995<br>% | 2005<br>% | 1982<br>% | 1995<br>% | 2005<br>% |
| Employed         | 48.3      | 61.4      | 67.0      | 82.0      | 80.2      | 82.0      |
| Full-time        | 31.1      | 36.8      | 38.2      | 78.4      | 73.6      | 72.4      |
| Part-time        | 17.2      | 24.6      | 28.8      | 3.6       | 6.6       | 9.6       |
| Not employed (b) | 51.7      | 38.6      | 33.0      | 18.0      | 19.8      | 18.0      |
| Total            | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     | 100.0     |

(a) at December

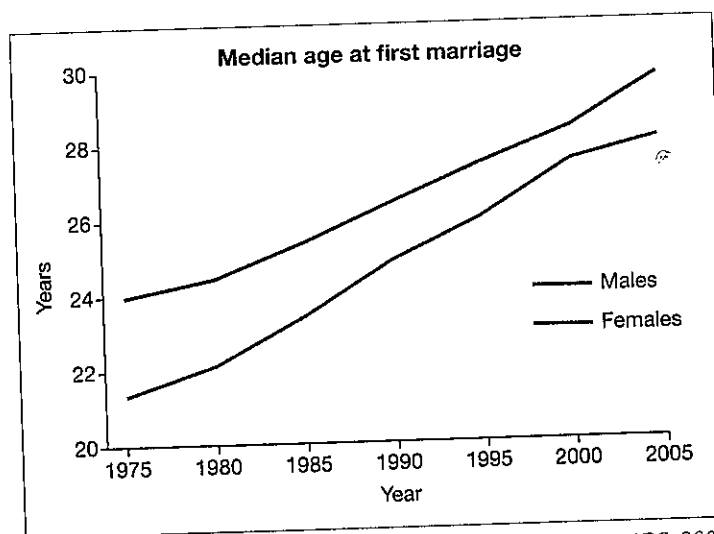
(b) includes person who are unemployed or not in the labour force

Source: ABS Labour Force Australia

**Figure 5.10** Example of a table

Graphs can be used to show trends such as school retention rates, or to show the relationship between two variables such as height and weight. All graphs should be numbered and titled in sequential order.

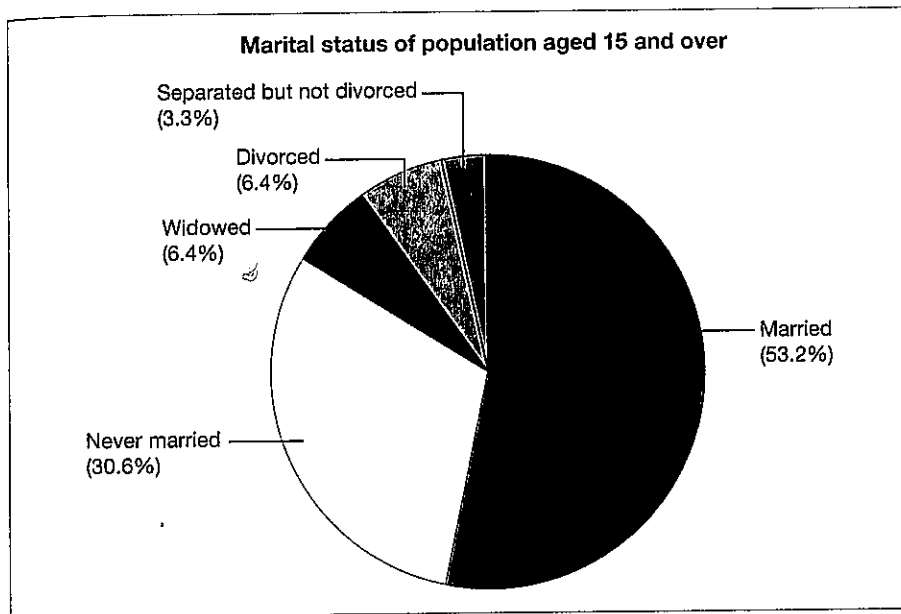
Line graphs are useful for demonstrating changes over time. When more than one aspect is to be included, different coloured lines or a combination of dotted lines are used. Figure 5.11 is a line graph that shows the median age at which males and females first marry in Australia.



ABS, 2008

**Figure 5.11** Example line graph

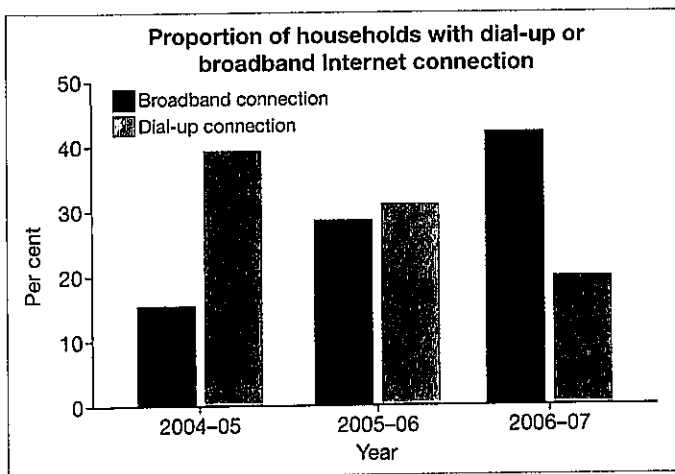
Pie graphs compare two or more parts of a whole. They are circular and present data in a visual way. Each portion in the circle is shaded differently and usually labelled with numerical information also. The pie graph in Figure 5.12 outlines the marital status of Australians over 15 years of age. The number of portions in the graph should be limited to allow for easy interpretation and the numbers must add up to the total in the sample or 100 per cent.



ABS, 2002

**Figure 5.12** Example pie graph

Histograms show trends or compare a number of factors. They are sometimes called bar or column graphs, and can be produced in a horizontal or vertical format (see Figure 5.13). When drawn correctly, histograms make it easy to interpret the data presented on them. Note that both axes and each bar should be clearly labelled and kept separate.



ABS, 2008

**Figure 5.13** Example histogram

Pyramid graphs are formed by placing two histograms together and are useful for comparing sets of data. Figure 5.14 is a good example, indicating the population in Sydney and the rest of New South Wales in 2007.

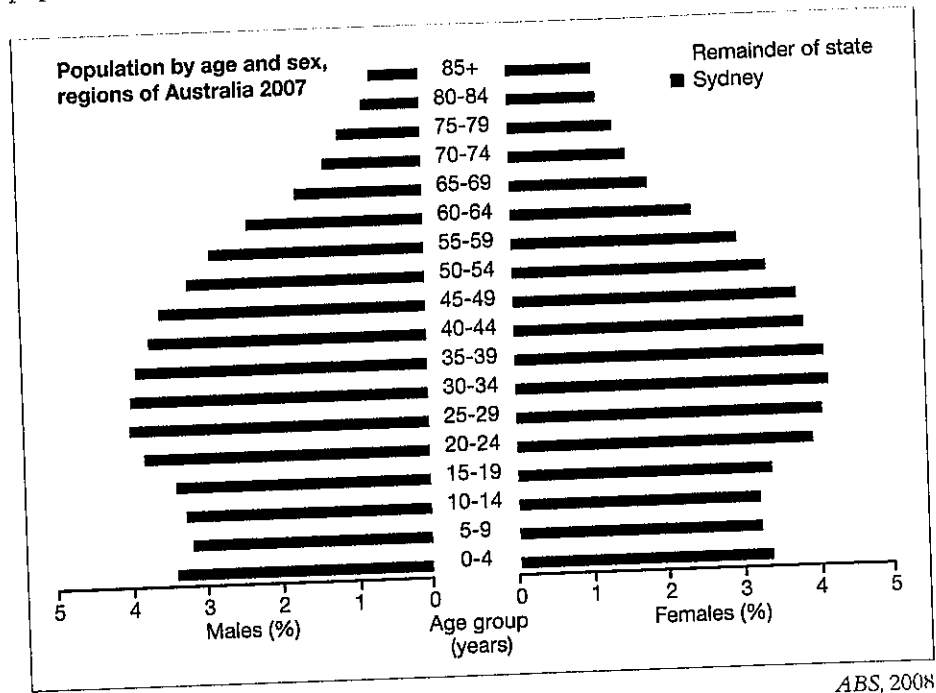


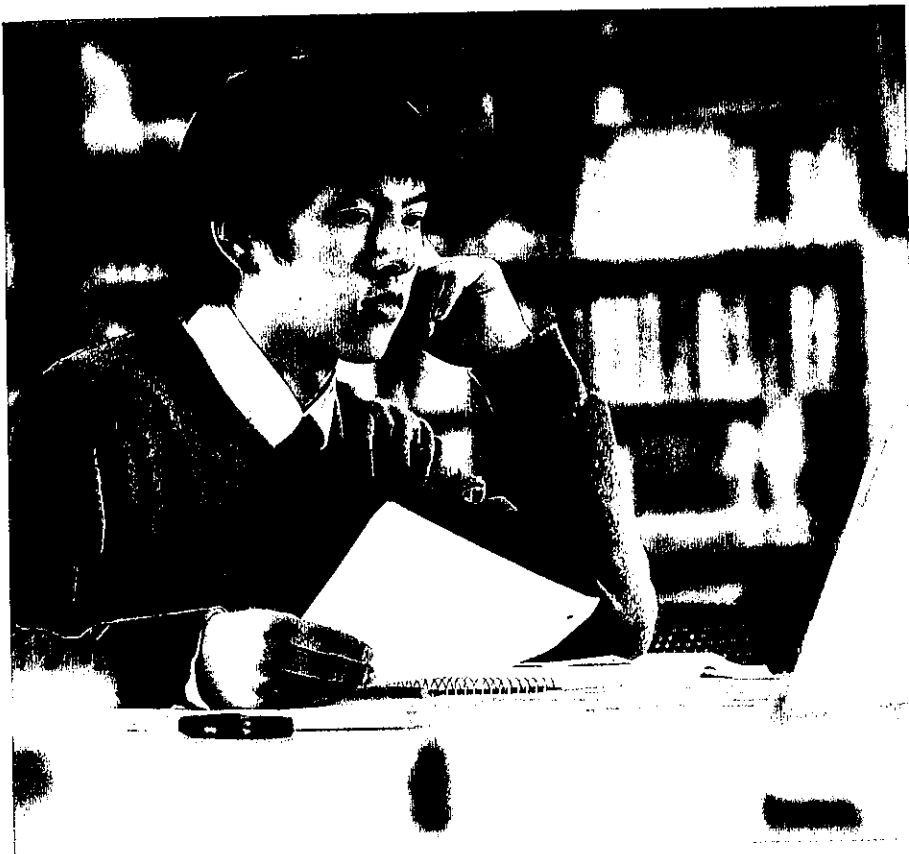
Figure 5.14: Example pyramid graph

### Report writing and presentation

The presentation of the report is the culmination of the research. It should be presented clearly, in a logical sequence and with the following components:

- title page comprising the report title, the author's name and the date
- contents page outlining the sections of the report with numbered headings and sub-headings, and appropriate page numbers
- abstract providing a brief summary or description of the research, introducing the project and its objectives, outlining the research method(s) used, and highlighting the outcomes and recommendations of the research
- acknowledgments thanking those who have helped with the project by naming them and listing their contributions
- body of the report, including:
  - introduction with a brief description of the topic, statements explaining why the topic was chosen, research question or hypothesis
  - literature review summarising the review of existing information
  - methodology explaining why particular methods were used, details on how the research was conducted
  - results describing what was found out
  - analysis and discussion explaining why the results came out the way they did and what this means in relation to the research question

- summary and conclusions presenting key points in a logical order with a major focus on the results and their analysis, and discussion and recommendations
- bibliography listing all sources read or looked at, even those not necessarily used in the report
- appendices, including information that is relevant and useful but not critical to the report or that is too long or unwieldy to place in the body of the report.



**Figure 5.15** Clear and careful presentation is needed when writing your Independent Research Project.

When presenting a research report:

- use one and a half or double spacing between lines and number all pages for clarity
- use paragraphs that are not indented and leave a line between each paragraph
- number headings and subheadings to help organise material into logical sections
- use relevant tables, graphs and illustrations to break up the text
- use correct referencing in acknowledging sources and so avoid plagiarism
- use abbreviations, such as HSC, only after the full term has been mentioned; that is Higher School Certificate (HSC)

- ask someone to proofread the report and check that clear sentences have been used, pages and graphics are numbered correctly, all references are included in the bibliography, and that there are no typographical and spelling mistakes
- do not use emotive, sexist or colloquial language, and write in the third person to be more objective (for example, 'It can be argued' rather than 'I think').

Failure to acknowledge another's work is plagiarism—a form of cheating—and can affect your marks and eligibility for the HSC. The Board of Studies (BOS) *HSC: All My Own Work* program discusses both of these issues and clearly sets out the guidelines you should follow in all your HSC courses. You should acknowledge material that you use from all sources—personal interviews, journals, DVDs, websites, pictures, teachers, emails and other students' work. Whether you quote someone else's work, use a copy of a table or image, paraphrase someone else's ideas in your own words or summarise another's ideas, you need to acknowledge this in your text and also provide a full bibliography at the end of your project.

An accepted and widely used means of referencing in-text is the Harvard system. If using a short quote from someone else, the quote must be enclosed in quotation marks and the publication date and page number of the source indicated, for example:

Fox (2004, p.12) refers to brain research that suggests 'the early years of life are more critical to a child's development' than previously thought.

If the quote is longer than three lines it should be indented, as below.

Fox (2004, p.12) has strong opinions about children learning to read very early and asserts:

Recent brain research has revealed that the early years of life are more critical to a child's development than we ever realised. Children's brains begin to develop from the moment of birth. Babies are wired to the senses of touch, taste, smell, sight and hearing whenever they are fed, played with, talked to, sung to and read to.

When using the person's idea, without directly quoting the person, it is appropriate to reference by either of the following ways.

Fox (2004) suggests that very young children need to be read to in order to develop properly.

or

In order to develop properly children need to be read to from an early age (Fox, 2004).

When someone has published more than one text or other research source in the same year it must be made clear which is being referred to by allocating a letter to each, such as 2004a and 2004b.



## Bibliography

All sources referred to in a report, and those others that the researcher looked at in researching the project, must be included in the bibliography. This means books, articles from newspapers and journals, television programs, websites, emails, films or video productions, audio-recordings, government departments and conference papers.

There are different referencing styles that can be used to create a bibliography. Your teacher will let you know the requirements for your school but it is important that you remember to be consistent in how you set out your bibliography. The most common referencing styles are:

- American Psychological Association
- Harvard (author–date)
- Modern Language Association
- Oxford (documentary–note or footnote referencing).

Figure 5.16 sets out a bibliography using the Harvard system. The list should be in alphabetical order according to the surname of the person who generated the source. Bibliographic entries generally have the following format:

- name of the person(s) who generated the work
- date of production of the most recent edition
- title of work in italics for book titles, single quotation marks for an article or program title
- name of publisher (do not include company, etc.)
- place of production (country, city or state).

Sometimes research reports require an annotated bibliography. This means that in addition to the bibliographic entry, a brief description of the work and how useful it was for the research is included. This information enables others who are interested in the topic to assess the value of different resources. An example of an annotated bibliographic entry is shown below.

Fox, M. 2004, *Reading Magic*, Pan Macmillan, Sydney.

A detailed and light-hearted look at the importance of reading aloud to children to help them learn to read and develop a passion for reading. Includes great illustrations, many stories from the author and hints for parents.

## BIBLIOGRAPHY

- Film production —————→ *Australia* (2008), motion picture, producers B Luhrmann, G MacBrown and C Knapman, director B Luhrmann, Twentieth Century Fox, Australia.
- Government —————→ Australian Institute of Health and Welfare (2006), *Disability and publication from a specific department* *disability services in Australia*, Australian Government Publishing Service, Canberra.
- Website —————→ Centre for Policy Development (2007), <http://cpd.org.au/>, 17 October 2009. —————→ Date accessed
- Book with multiple —————→ Cornelius, H, Faire, S & Cornelius, E (2006). *Everyone Can authors* *Win—Responding to Conflict Constructively* (2nd edition), Simon & Schuster, Sydney.
- Podcast —————→ Fidler, R (2008) Conversations: Leith Harding, ABC local radio, backyard@our.abc.net.au, 2 December.
- Newspaper article —————→ Ham, M, 'Part-time gives you more time', *My Career, Sydney Morning Herald*, 13 December, p. 3.
- Book (with general —————→ Healey, J (ed) (2001). *Family values, Issues in Society*, Spinney —————→ Publisher editor) Press, Australia.
- Video production —————→ *Inside Story: Conflict Resolution* (2007), Video Education Australia, Victoria.
- Conference paper —————→ Katz, I (2007), 'Resilience and diversity in children and families', *Australian Welfare 2007 Conference*, Canberra, pp. 26–42. —————→ Page numbers
- Journal article —————→ Qu, L (2008), 'Work and family balance: Issues in research and policy', *Family Matters*, Australian Institute of Family Studies, Melbourne, 80, pp. 12–21. —————→ Volume number
- Educational resource —————→ Slec, P, Flanagan, A & Mitchell, B (1995), *Stressed Out and kit/package* *Growing Up*, Children and Adolescent Psychological and Educational Resources, Flinders University, South Australia.
- Personal interview —————→ Taylor, L, personal interview, 12 August 2009. —————→ Date interviewed
- Television program —————→ *Today Tonight* recording, Channel Seven, 20 November 2009. —————→ Date of recording
- Personal email —————→ Weihen, L [weihen@optusnet.com.au](mailto:weihen@optusnet.com.au) personal email, (29 October 2009). —————→ Date posted
- Book with single —————→ Ziegler, H. (2004), *Changing lives, changing communities*, (Revised author edition) Wesley Mission, Melbourne. —————→ Place of publication

## Appendix

Appendices are included at the end of a report and contain material that is relevant to the research project but is not appropriate to have as part of the body of the report. Sometimes an appendix may be very long and placing it in the body of the report would interfere with the flow and reading. Typical appendices may contain:

- a copy of the questionnaire or interview questions
- maps or similar documents used in preparing the report
- long and complex tables referred to in the report
- a complete list of people interviewed.

It is important to keep appendices relevant and clear. Each piece of material should form a separate appendix and be numbered and titled. It is not necessary to include all responses to questionnaires in an appendix. They are reported on in the results and analysis and discussion sections and the reader does not need to see each individual form.

## Sources of data

Sources of data are the different places where you find information. Whatever the source, it is important to be aware of the limitations of data and its use to support particular views.

## People and individuals

A variety of people may be able to assist you in conducting research. These include:

- teachers at school
- teacher librarians and community librarians
- people with an interest or expertise in the area of your research such as doctors or managers
- members of your family
- other students
- members of community groups
- people in particular types of employment.

Individuals can be useful sources of data because you are able to collect first-hand data and they may provide opportunities for you to network with others also. There can be limitations, however, as their personal biases may come across and they may not show a great willingness to help or have limited time available.

## Did you know?

A popular mnemonic for remembering the sources of data is PEOPLE with no E for People, Electronic sources, Organisations, Print sources and Libraries. Can you think of one of your own?

## Organisations and groups

Data may be obtained from organisations and community groups including:

- local councils
- workplaces
- educational institutions
- welfare organisations
- government agencies
- political parties
- police, fire or ambulance services
- medical and health authorities
- special interest groups.

A wide range of knowledge and skills can be accessed by using this source of data, in a first-hand context. These views may sometimes be biased or political in nature, depending on the interests of the group.

## Electronic sources

Electronic sources that may be used when gathering data include:

- CD ROMs, DVDs and videos
- computer software or hardware files
- websites, emails and blogs
- television programs
- radio reports and podcasts.

These sources have several benefits. They provide up-to-date information, are fairly easy to access, overcome problems of distance and open up a wide range of resources. They are also very popular with young researchers like you! However, time, skill and cost are involved in accessing technology and sometimes it can be difficult to validate information sources with so many people being able to put information out there so easily.

### You might like to ...

Read back over the section on Using the internet in Chapter 1 to check out how to research effectively from websites.

## Libraries

Libraries are very useful sources of information. They can provide bibliographies, indexes and a wide range of print and electronic media. Libraries that can be accessed include those in:

- schools
- local communities
- universities and other educational institutions
- states and cities.

One of the major advantages of sourcing data from a library is that there is a wide range of resources in the one place, plus there is access to technology and other services such as computers and advice from librarians. There are

limitations in that libraries usually only provide secondary sources of information, some resources may not be completely up to date and there could be limits on what can be borrowed or used within the library itself.

## Print sources

A variety of print sources may be accessed including:

- textbooks and reference books
- encyclopaedias, dictionaries and thesauruses
- pamphlets and brochures
- journals, newspapers and magazines
- maps, pictures and posters
- catalogues and reports.

Print sources offer a wide range of resources on many subjects in a range of styles that can be useful for different kinds of research. However, the resources may be general in nature, rather than specialised, and some may be out-of-date compared to electronic sources that can be modified more quickly and readily. Space is also required in order to store and use print sources effectively.

- 1 Represent the information in Figure 5.10 in a line graph.
- 2 Construct a pie graph to represent the eye colours of all the students in your class.
- 3 Collect and label different graphs from newspaper articles and other sources to create a class display.
- 4 Visit the school library to select and correctly record the bibliographic details for one of each of the following:
  - book
  - journal article
  - website
  - DVD production.
- 5 Examine the different sources of data through a PMI table.

## Research terminology

A good research project is concerned with using sound and appropriate research methods, establishing reliable and valid results, using careful sampling, following ethical principles and presenting a clear and professional product. To become a good researcher it is essential to be familiar with the terminology used in the field of research.

## Bias

Research is always influenced by personal values, but it is important that researchers remain as objective as possible in the methods they choose, how they implement these methods and how they interpret and present the results. Bias occurs when a factor or range of factors unfairly influences the outcome of research results and thus distorts them.

Bias can occur at any stage of the process. Researchers must be careful to be open to all the possible outcomes of their research with no predetermined ideas. They must select the best and most effective method—and not a particular method simply because they prefer it—and choose an appropriate sample group rather than just individuals who are readily available. They must then interpret the results as they appear and not as they would like them to be.

## Hypothesis or question

A research question is often written as a hypothesis. It is a positive statement of what the researcher expects to find out or an idea that they want to test. The aim of the research is to prove or disprove the hypothesis. Some examples of research hypotheses that are appropriate in CAFS include the following.

- Home computer use is a major contributor to obesity in the Australian population.
- Australian sporting stars provide good role models for teenagers.
- Working parents are the majority users of childcare.
- Gender stereotyping is highly evident in the workplace.
- The local community provides a wide range of leisure facilities for the socioeconomically disadvantaged.

## Reliability

Reliability, or a reliable method, is one that if used by other researchers under similar conditions, will produce the same or very similar results. Achieving reliability requires researchers to be systematic and organised so as to be able to rely on producing consistent results over time. By achieving reliability accurate research is achieved.

## Sampling

Sampling involves selecting the individuals who will be included in the study as a representative of the total population of people who form the focus of the study. A representative sample has similar characteristics to the population being studied, for example in age, gender or cultural background. There must be a limit on the number of people used in a research study. To achieve a representative sample a researcher may use either probability or non-probability sampling.

### Probability sampling

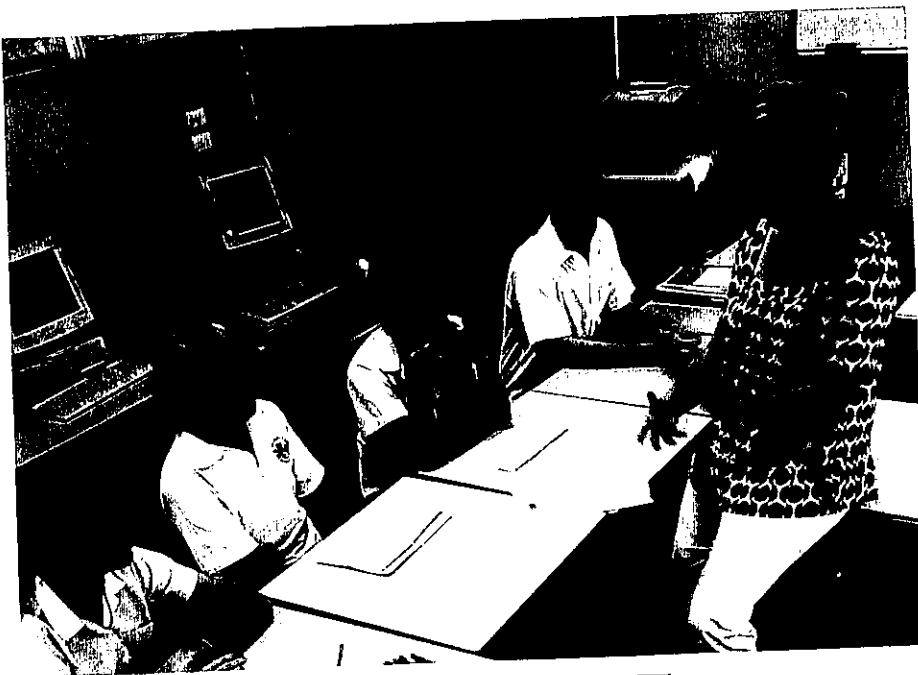
Probability sampling allows each member of the representative population an equal chance of being selected. One of the following methods can be used:

- random: each individual has the same chance as any other of being selected; suitable where the population is relatively small
- systematic: similar to random, but every  $n$ th individual is selected from a population
- stratified: population is divided into groups or categories, then within each group a random or systematic sample is selected
- cluster: several different samples are drawn from the population.

### Non-probability sampling

Non-probability sampling means that some members of the representative population have a greater, but unknown, chance than others of being selected. One of the following methods can be used:

- purposive: individuals are selected as they are expected to be representative of the population; researcher is seeking a specific group
- quota: individuals are selected due to specific traits, such as age or marital status
- convenience: individuals are selected because they are willing to be involved and are available
- snowball: a few individuals are selected initially and then they identify other individuals with the same characteristics who are also included
- expert: individuals who have expertise or can make informed judgements about the subject are selected.



**Figure 5.17** A sample is a representative of the total population.

Some studies have a limited focus, for example all Year 8 students at a particular school where the researcher could use each student. Some studies are wider in focus, for example the number of males entering the nursing profession in New South Wales where the use of each individual is impossible. In this case a representative sample study group that covers a cross-section of relevant individuals would be chosen.

It is also important to consider the size of the sample group. The larger the sample the better, as this achieves a wider representation of the population. The sample size will vary depending on factors such as topic, time available and access to individuals.

Careful and appropriate sampling is important in achieving reliable research outcomes. Reliability in research means that an accurate representation of the population being studied is achieved. This can only occur if an appropriate representative sample was selected at the beginning of the research process.

### **Validity**

Validity refers to how well the research method measures what it is supposed to measure. It can only be achieved if the results of the research have been obtained correctly. It involves selecting the most appropriate research method or methods and using them correctly. Using a combination of methods can help to increase the validity of research.

Validity is dependent on the reliability of data and how accurately the data is interpreted. To achieve validity the researcher must have background knowledge of the topic in order to make informed assumptions and generalisations rather than relying on value judgements or biased views.

### **Ethics in research**

Ethics refers to the moral principles or standards that help us understand what is right and wrong. In research, ethics protect the rights and wellbeing of the participants and the researcher, and assist in producing good research outcomes. Research is guided by ethics; that is, the most socially responsible or moral way of proceeding. It is your obligation as a responsible researcher to ensure that ethical rights are met.

Ethical issues are often identified during planning research. However, as you begin to implement the research methods, further problems may arise that were not anticipated. It is best to discuss ethical concerns with others, such as other students or teachers, to try and overcome the problem and ensure that individuals are protected, as are the research findings.

### **Privacy**

Privacy is an important ethical consideration. The researcher should protect the confidences and identity of individuals involved in the research. The researcher must also be sure to have the consent or permission of all people



who take part to use their views. It requires careful thought, planning and preparation to ensure that the privacy, integrity and anonymity of the people involved in the research is protected. As a researcher it is important to be aware that any individual you wish to involve in your research has the right to:

- anonymity, meaning not be named or identified in your research project
- confidentiality, meaning you will not talk about what you found out or report it anywhere outside the research project
- withdraw anything said that you may have intended to use in your research project
- feel no risk to their wellbeing
- refuse to be involved at all.

### **Respect for subjects of research**

Researching social issues involves collecting data from individuals. Researchers rely on others to provide them with honest, accurate and reliable data. In order to collect this data you must be careful to treat these individuals properly and with respect.

The welfare of individuals is an important concern for researchers. The researcher must ensure that no harm comes to the individuals who take part in the research. Individuals should be approached and treated with respect for their feelings, age, culture, status, health and experiences. The wording of questions should be carefully considered so as not to upset or offend individuals or be too personal.

### **Integrity of researcher**

Researchers must treat participants and their research in an honest way. Participants have the right to know who you are, what school you are from and the purpose and nature of your research project. You must be honest with individuals involved about the purpose of the research and make it clear how the research will be used and who will have access to the findings. The researcher should offer to present individuals involved with a copy of the final published report.

Acknowledging sources you use in your research also demonstrates your integrity as a researcher. This involves correct and careful in-text referencing, and the inclusion of a complete bibliography at the end of the project.

### **Integrity of data**

Participants have the right to be involved in research that reports as truthfully and as objectively as possible. Researchers must be honest and report with no bias. This means collecting thorough and credible information, and verifying it.

- 1 Differentiate between quantitative and qualitative research.
- 2 Describe a research proposal.
- 3 Explain how a research question is developed.
- 4 Describe each of the research methodologies.
- 5 Outline what is involved in effectively planning for a research project.
- 6 Differentiate between primary and secondary research.
- 7 What is involved in analysing and interpreting research data?
- 8 Describe each of the following graphic works used in presenting projects:
  - table
  - line graph
  - pie chart
  - histogram
  - pyramid graph.
- 9 Identify the components of a research report.
- 10 Why is it necessary to acknowledge sources in research?
- 11 Outline the limitations of each of the sources of data.
- 12 Define the following research terms:
  - a bias
  - b hypothesis
  - c reliability
  - d sampling
  - e validity.
- 13 Explain the ways in which researchers can ensure that their research is ethical.

